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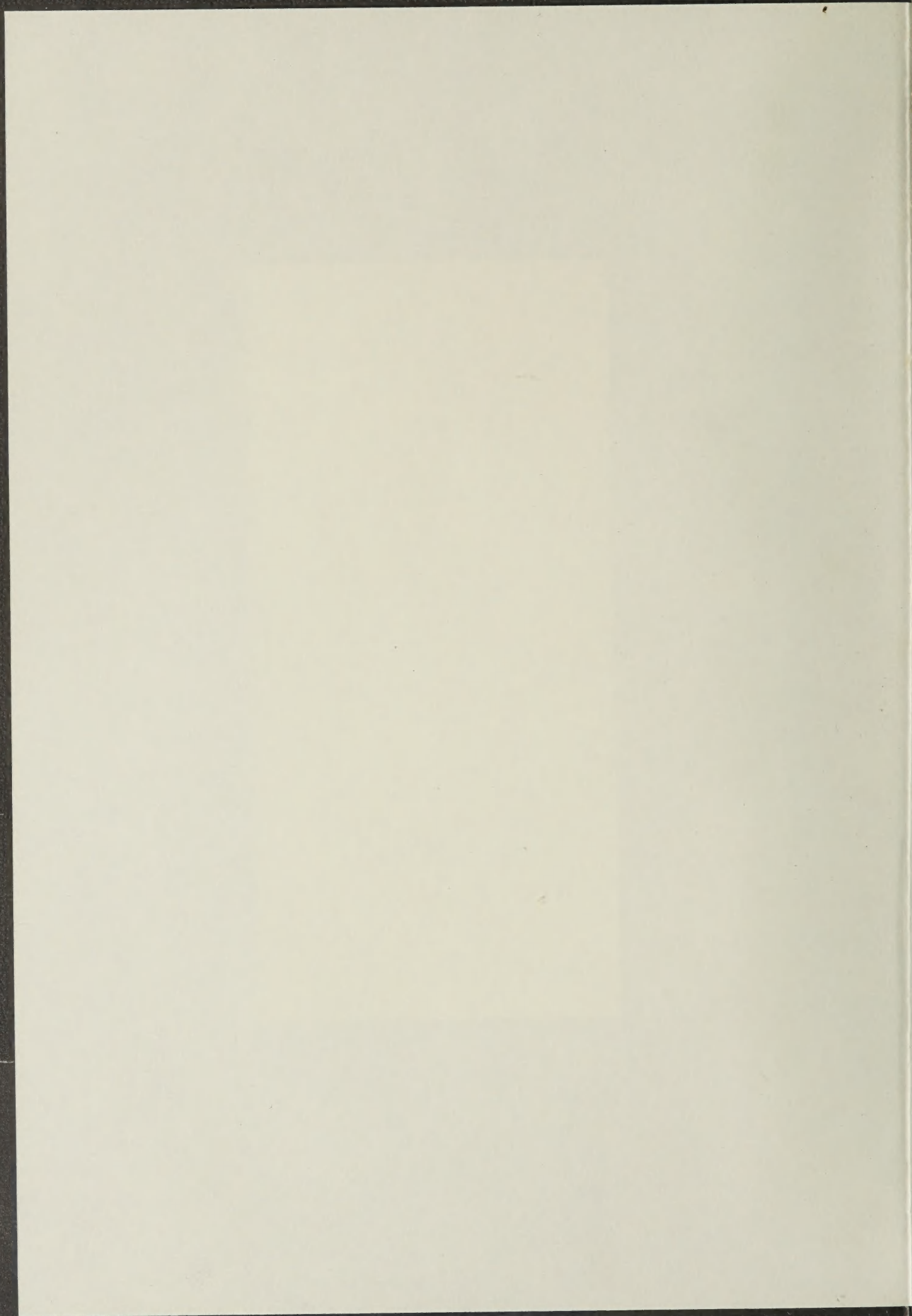
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A Statistical Inquiry

INTO THE
EFFICIENCY OF PRESENT-DAY METHODS OF
DIAGNOSIS OF ULCERS OF THE
STOMACH AND DUODENUM,
AND INTO THE VALUE OF GASTRO-
JEJUNOSTOMY IN THEIR
TREATMENT.

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ON the evenings of Dec. 3rd and 17th, 1920, there took place, in the Royal Medico-Chirurgical Society of Glasgow, an important discussion on the treatment of gastric and duodenal ulcer. Of the many points of interest and value which emerged in the course of the discussion this inquiry is concerned with two only: (1) the supposed inherent difficulty in, and the unreliability of, the diagnosis of these lesions; and (2) the efficacy or not of gastro-jejunostomy in their treatment.

So much at variance did I find myself with some of the views on these points expressed on the first evening of the discussion that, in the interval before resumption of the discussion on Dec. 17th, with the aid of my assistants, Dr. A. J. Hutton and Dr. J. Scouler Buchanan, I set on foot a careful inquiry into both subjects, in respect of all such cases seen and dealt with by us within the three and a half years immediately preceding. It was intended to lay the results of the inquiry before the Society at the second meeting, but the interval of time was not long enough for completion of the investigation or for adequate digestion of its results. These results are presented, therefore, for the first time in this paper. It was also intended to extend the inquiry to cases further back than the period mentioned, but the findings for the latter seemed to us so gratifying and so conclusive that such further investigation has not appeared to be necessary. Nor was it deemed advisable to include the considerable number of similar cases dealt with since December, 1921, as the period that has elapsed was too short to give reliable data as to the permanency of the effects of treatment.

METHOD OF INQUIRY.

When the inquiry was set on foot we felt uncertain how far, if at all, its results might be at variance with views expressed in the earlier part of the discussion. The inquiry was made in as impartial a manner as possible, and with the single desire to discover the truth as borne out by well-ascertained facts.

The first part of the inquiry consisted in a careful comparison in each case between the diagnosis made prior to operation and the actual finding at operation; or, in the cases not operated on, in as unbiased and judicial an estimate as possible of the most probable pathological condition present. The series included all those cases within the period mentioned, in which lesions of the stomach or duodenum were diagnosed, whether the diagnosis was verified at operation or not; it included, also, cases in which other lesions were suspected or actually diagnosed—such as cholecystitis, appendicitis, &c.—but which were proved at operation

to be lesions of stomach or duodenum, or combined with these. The facts in this section of the inquiry were easily available in our records, which have been kept with care.

For the purpose of the second part of the inquiry a form of questionnaire was sent out to all patients included in the series except those who were known to have died. Replies were received from almost all to whom the communication was sent, and the conclusions were based on these replies. The nature of the questionnaire will be indicated later. Of course, there is, and probably always will be, both a medical and a surgical aspect of the subject; this inquiry is made largely from the surgical point of view. It is realised, too, in the case of ulcer either of stomach or duodenum, that the surgeon usually sees, and has to deal with, the chronic ulcer. Except where the ulcer perforates, or bleeds in alarming fashion, the surgeon seldom has to deal with the acute ulcer—not that the chronic ulcer does not also bleed and perforate; probably, indeed, most perforating ulcers are of the chronic variety. Still, a considerable proportion of the cases of perforation and of grave bleeding, as well as many cases of less severe bleeding, occur where there is present what would be properly termed an acute ulcer, and many of these cases, even now, the surgeon does not see at all. No doubt some ulcers, of the acute type at first, pass later into the state and class of the chronic ulcer, which the surgeon may see. But it seems probable, and it is generally accepted, that many ulcers of stomach and duodenum are of the chronic class from their inception. It is no part of the purpose of this paper to discuss the factors which determine the variation in type. The matter is mentioned merely as indicative of our appreciation of the fact that our conclusions have only a limited application. Within the limits set, however, we believe they are of some value.

DIAGNOSIS OF ULCERS OF STOMACH AND DUODENUM.

Much stress has been laid, in medical and surgical literature, on a supposed inherent difficulty in the diagnosis of these lesions, and the emergence of this idea, in the course of the discussion referred to at the beginning of this paper—with the reflection it implied on the efficiency and reliability of present-day methods of investigation—suggested to us the advisability of looking into our statistics, to see what support or otherwise they might give to such a despondent view. In the course of the discussion Dr. G. Herbert Clark pointed out how ample were the means at the disposal of the physician and surgeon in the way of investigation, and indicated how real and reliable were the available aids to diagnosis. One speaker had stated that the results of physical tests and chemical methods were frequently wrong. Dr. Clark maintained, on the other hand, that the results were accurate; it was the deductions that were inaccurate. Our view, in fact—borne out, we submit, at least substantially by our statistics—is that, in the main, a tolerably accurate diagnosis can be made differentially between these and allied lesions.

For the purpose of the inquiry we have taken all the cases occurring during the three and a half years immediately preceding the date of the discussion, in which definite symptoms suggestive of lesions of stomach or duodenum were present, or in which, for whatever reason, such lesions were suspected, whether operation proved their existence or not. Also, we have included such cases as may have been diagnosed otherwise, but in which operation disclosed a lesion of stomach or of duodenum not previously suspected. The series includes 110 cases, which we have classified in groups, each group-title representing the diagnosis made—not necessarily the lesion found at operation or finally accepted as the correct diagnosis.

It is not intended to enter into any discussion of the details of the methods on which we depended in the making of our diagnosis in any of the cases, nor, indeed, to refer to these methods at all. They were just such as are at the disposal of any careful observer,

and included the usual careful physical examination, chemical and physical tests, as well as X ray methods. We would like to add, however, that we attach great importance to a very searching and discriminating consideration of the clinical history in every case. We make no apology for confining our inquiry strictly to the purely statistical aspect of the matter. That is, indeed, the purpose of the paper. If we can show that, as a matter of fact, an approximately or actually correct diagnosis was arrived at in a very large proportion of the cases included in the series, it seems to us that we have proved our case—viz., that we possess, in present-day methods—clinical and chemico-physical—efficient and, on the whole, reliable means for the accurate investigation of these cases.

It may here be stated that it is our custom to endeavour to make a definite diagnosis prior to operation, if there is one; and in any case where doubt remains after consideration of all the available facts, to note that doubt. The cases are studied and generally discussed with some care, and at least a tentative diagnosis is put forward. That being our custom in the wards, it follows that we have, in the records of the ward journals, with, on the one hand, the pre-operation diagnosis, and, on the other, the operation finding, in each case a fairly useful basis for the statistical inquiry made.

The diagnosis made in each of the 110 cases may be shown in tabular form thus:—

	Cases.
Gastric ulcer	9
In these no other lesion was suspected.	
Pyloro-duodenal ulcer	38
This group includes ulcers situated at or about the pylorus, whether beginning as ulcers of the stomach or ulcers of the duodenum, and, on the stomach aspect, affecting either lesser or greater curvature. We have long recognised the group as quite well-defined, easily differentiated clinically. We commonly speak of them as P.D.U.	
Duodenal ulcer	21
Here we include only ulcers diagnosed as involving the duodenum by itself. It will be observed that it is a much smaller group than the foregoing.	
Cancer of stomach, &c.	26
In this group cancer was definitely diagnosed or strongly suspected.	
Pyloro-duodenal ulcer or cancer	6
Here it was recognised that the diagnosis, as between a chronic ulcer of the pyloro-duodenal region and cancer, was doubtful.	
Visceroptosis, &c.	4
Stenosis of the pylorus (congenital)	1
Gastritis of simple nature	1
Adhesions after gastro-jejunostomy (two years before)	1
Cholecystitis, gall-stones, and probable duodenal ulcer	1
Cholecystitis, gall-stones (no P.D.U. suspected)	1
Appendicitis, acute (perforation diagnosed)	1

These groups may now be considered in more detail, showing what correspondence there was between the diagnosis, as made, and the definitely ascertained or probable lesion.

Nine Cases Diagnosed as Gastric Ulcer.

These cases may be further subdivided as shown in tabular form below. Considering this group as a whole, it is seen that of the 9 cases, 5 were submitted to the test of operation; the diagnosis of the lesion and of its location proved correct in 4, while in 1 case the ulcer was found in the duodenum. The physician had diagnosed it as gastric, but the probable error was suspected prior to operation, after perforation had occurred. Of the remaining 4 cases one was observed for a considerable time, and the diagnosis, agreed to by physician and surgeon, may be accepted as reasonably correct. In 2 other cases, both occurring in women, operation was impossible, but they were almost certainly cases of gastric perforation. In the 1 remaining case the after-course supported the diagnosis of a "pinhole" perforation of a gastric ulcer. So that though only half of the cases were actually proved by operation to have been diagnosed correctly, a more careful survey of the whole of the

cases in the group seems to justify our claim that in 8 out of 9 cases the diagnosis was probably accurate. And in the ninth case the error was appreciated or at least more than suspected prior to operation.

	Cases.
With perforation of ulcer and free peritonitis	2
In one the diagnosis was correct; in the other the location of the ulcer proved to be duodenal. The case was diagnosed as gastric in the medical ward, but after perforation had occurred the signs were judged to be suggestive of a duodenal rupture.	
Without perforation of ulcer	3
One not operated on, but diagnosis agreed to by physician. Two cases confirmed at operation: in one of these diagnosis of concomitant aneurysm of abdominal aorta also confirmed at operation.	
With grave hæmorrhage—ulcer of lesser curvature diagnosed	2
One confirmed at operation—incomplete perforation, coronary artery exposed, and perforated in the floor of the ulcer; in the other case the patient was in extremis and operation was not considered advisable.	
Doubtful perforation of gastric or P.D.U.	1
Patient in extremis; died one hour after admission to hospital; no post mortem.	
Doubtful "pin-hole" perforation of gastric ulcer or acute dilatation of stomach	1
After drinking bout; no operation; recovery after course suggesting a local peritonitis consistent with a "pin-hole" perforation.	

Thirty-eight Cases Diagnosed as Pyloro-Duodenal Ulcer.

In this group perforation had occurred recently in 8, being confirmed by operation. The remaining 30 included 26 cases in which operation confirmed the diagnosis as to condition and location. In 2 cases there was no operation (not advised, 1; declined, 1). In the other 2 cases the diagnosis was not upheld by the operation-finding (visceroptosis, 1; chronic appendicitis and cholecystitis, 1).

Considering this group as a whole it may be reasonably claimed that out of the 38 cases the presence of pyloro-duodenal ulceration, as diagnosed, was proved by operation in 34, though in 1 of these the ulcerative process was found to be, or to have become, cancerous. Both cases not operated on were almost certainly correctly diagnosed, more particularly the case in which operation was advised but declined; the whole clinical picture was beyond dispute and confirmed by X ray tests. It seems quite fair, therefore, to claim 36 correct diagnoses out of 38.

	Cases.
With recent or recurrent perforation of ulcer	8
All confirmed at operation as to the presence of pyloro-duodenal ulceration, but in 1 case of the 8 the ulcerative process proved to be, or to have become, cancerous. One case had perforated previously (two years before—said to have been of stomach then). The fresh perforation was just to duodenal side of pylorus.	
Without recent perforation of ulcer	30
In 26 operation confirmed the diagnosis. In 2 operation was either not advised or declined. In 2 operation negated the diagnosis.	

Twenty-one Cases Diagnosed as Duodenal Ulcer.

This group contained 14 cases of perforation, and 7 in which perforation had not occurred. Of the former, 10 cases were found to be definitely duodenal; in 4 the perforation was found to be pyloro-duodenal. In the 7 cases in which perforation had not occurred, operation proved the correctness of diagnosis in 4. The remaining 3 were not operated on—in 2 cases because the symptoms and signs were, though fairly characteristic, not regarded as urgent; in the third because the depletion of blood, from repeated hæmorrhages, seemed to make operation too great a risk. This patient had had an operation previously, some years before, elsewhere—probably gastro-enterostomy—on account of similar symptoms; the clinical picture in this case was unmistakable.

Surveying the whole group, it appears that of the 21, diagnosed as cases of duodenal ulcer, the correctness of diagnosis and location was established

at operation in 14. In 3 out of the 21 there was no operation, but all the facts pointed, almost beyond dispute, to correct diagnosis. In the remaining 4 cases, operation disclosed an ulcerative process not strictly duodenal in location, but more extensive, involving the pyloro-duodenal region. Even this error of, at most, 4 out of 21, and implying only a slight spread of the ulcerative process, can hardly be said to constitute a serious defect in diagnosis.

	Cases.
With recent perforation	14
In 10 confirmed as duodenal at operation. In 4 proved to be pyloro-duodenal by operation.	
Without recent perforation	7
In 4 confirmed as duodenal at operation. In 3 no operation; in 2 of these, symptoms not urgent, but clinical picture characteristic; in the 1 case remaining, diagnosis practically certain, but confirmation by operation negatived by severity of hemorrhages.	

Twenty-six Cases Diagnosed as Cancer of Stomach.

This group includes a majority where the definite diagnosis of cancer was made, and several cases in which this diagnosis, although not absolutely definite, was so probable as almost to amount to certainty. In this group the element of uncertainty can never be entirely eliminated; there must always be cases in which it can only be said that there is a strong—perhaps a very strong—suspicion of malignancy. In 15 cases out of the 26 the presence of cancerous ulceration, in varying stages of development, was demonstrated by open operation. In 7 of the 26 operation was not carried out. In 2 of these the condition was too advanced to admit of any form of operative interference; one died within a week, the other within a few hours of being seen. In the other 5 of these 7 cases operation was refused; in 4 of these, however, the clinical picture was absolutely characteristic, and a fatal issue was not long delayed. In all 4 there was definite tumour, with evidences of spread to the liver, &c.—so that the diagnosis cannot be considered doubtful. In the fifth case there was some doubt; malignancy was definitely suspected, but the possibility of a cholecystitis had been considered. The patient reported, two years after refusing operation, that she was quite well, had gained weight, and had no longer any symptom; so that it may be admitted that, in this case, a diagnosis of cancer of the stomach was not justified.

There remain 4 cases in which operation was carried out, but in which it disclosed no sign of cancer, though a diagnosis of probable cancer had been made prior to operation. Two of these 4 cases showed well-marked, more or less active, pyloro-duodenal ulceration, with stenosis of the pylorus, &c. In 1 case there were found some adhesions about the pylorus, and dilatation of the stomach, but no sign of any recent ulcer of the region. In the remaining case the finding of a definite cancer was confidently expected; the symptoms and signs were thought to be most suggestive of it. Nevertheless, no evidence of cancer was disclosed at operation; chronic appendicitis, tuberculous glands in the mesentery, some dilatation of the stomach, and other evidence of old pyloro-duodenal ulceration were found. Thus:—

In 15 cases diagnosis confirmed at operation.
In 7 cases no operation.

Of these, operation not possible in 2, but condition unmistakable; in 1, operation advised but refused; clinical picture, however, characteristic, and fatal issue not long delayed: in 1 case diagnosis not clear, but afterwards, as reported on two years later, indicated that the condition was not malignant.

In 4 cases operation did not confirm correctness of diagnosis.

Two proved to be simple pyloro-duodenal ulcer: 1 showed pyloric adhesions, &c.; 1 showed a complex condition, involving appendix, stomach, glands, and duodenum.

A general survey of this group of 26 cases, in which a definite or probable diagnosis of cancer of the stomach had been made, shows that the diagnosis was certainly correctly made in 17 (15 confirmed by operation, with the 2 in which operation was impossible but the condition unmistakable); it seems

justifiable, indeed, to assume that the diagnosis was probably correct in 21 out of the 26 (i.e., adding to the 17 the 4 in which, though operation was declined, the clinical picture was characteristic); that, finally, the diagnosis was incorrect in 5 out of the 26 cases (4 proved, at operation, to be simple, and 1 in which operation was advised but refused, but in which the subsequent history disproved the diagnosis of malignancy).

Perhaps the most striking point in connexion with this group is this—that in all four cases where the diagnosis was proved at operation to be erroneous, the confusion was with a condition of chronic pyloro-duodenal ulceration. Probably such a condition may pass, not infrequently, into the malignant phase. Again, chronic pyloro-duodenal ulceration, especially where it affects the lesser curvature in the region of the pyloro-duodenal junction, is often marked by great inflammatory thickening, amounting often to considerable “tumour” formation. Indeed, even at operation, it is not infrequently difficult enough to say definitely whether a pyloro-duodenal mass is inflammatory or of the nature of a new growth. It may be noted, too, that in all 15 cases where operation confirmed the cancerous nature of the condition, the disease was already well advanced by the time operation was carried out. In 2 of the 15 the cancerous process was located primarily on the lesser curvature of the stomach; in 1 case, what was thought to be the prime seat was located on the posterior wall. In 6 cases the pyloric segment was primarily involved; in the remaining 6 the disease was already so far advanced that no more than a guess could be made as to the probable primary seat of origin. Unfortunately, not even yet does the surgeon often see these cases early enough.

Six Cases Diagnosed as Pyloro-Duodenal Ulcer or Cancer.

In contrast with the last group, in which cancer was definitely diagnosed or strongly suspected, but in which 4 cases proved to be simple, this group comprises 6 cases in which, while no definite diagnosis was made, the possibility of cancer could not be excluded, though there seemed to be a fair probability of the lesion being simple. The group may be said to comprise two subgroups: (1) Three cases in which the test of exploratory laparotomy was applied; (2) three cases in which operation was recommended, but was declined. In the first subgroup were 2 cases in which, even at operation, the diagnosis remained in doubt; what was thought to be extensive chronic ulceration was found, involving the lesser curvature of the stomach and the region of the pylorus, with definite and considerable “tumour”; also a case, operated on by a former assistant, who reported that he found a condition very similar to this. The former 2 cases are reported on now, after three years, as completely well; the third case was operated on only six months before this inquiry was made, and is reported to be greatly improved. In the second subgroup, in which no operation was carried out, one patient reports himself as quite well after 17 months; a second, seen a few days before this inquiry, is apparently much better after a prolonged rest, holiday and simple treatment. He has gained weight and his strength has improved. He has now no symptoms of special note. The third case of this subgroup was seen two years ago; this is one of the very few cases in which no reply to the questionnaire has been received. Thus:—

In 3 cases exploratory operation carried out.

In all 3 chronic ulceration with “tumour”; all well to-day, 2 after three years, 1 after six months. Even at operation cancer not clearly negatived, but subsequent course rules it out conclusively.

In 3 cases operation advised but declined.

One patient well after 17 months; 1 patient apparently well after seven months; the third not traced.

A consideration of this group seems to bring out one rather remarkable feature—viz., that where the diagnosis as between chronic pyloro-duodenal ulceration and cancerous ulceration is doubtful, the odds

seem greatly in favour of the non-malignant lesion. Certainly in 5 out of the 6 cases the subsequent history appears to have pretty conclusively proved the simple character of what had been regarded as quite possibly a malignant condition. In 3 of the cases, even at operation, it was not possible by actual inspection and palpation altogether to exclude cancer, but the lapse of time would seem in them, as in the 2 cases not operated on that have been traced, to have finally proved their non-malignancy. This feature, brought out by consideration of the cases in this group, is of interest and importance as emphasising the great value of a right estimate of the probabilities in surgical diagnosis.

Four Cases Diagnosed as Visceroptosis, including Gastroptosis.

The following are the details of the cases in this group:—

- One, general ptosis suspected, with probable gall-stones. Ptosis confirmed at operation; gall-stones found and removed.
- One, general ptosis diagnosed, with possible cancer of stomach. Operation disclosed general ptosis of stomach, &c., but no cancer.
- One, general ptosis diagnosed, including gastroptosis. Had been operated on three years previously for floating kidney; no further operation advised at this time, but operation required a year later for appendicitis.
- One, general ptosis diagnosed, including gastroptosis and nephroptosis; also congenital cystic kidneys. Operation confirmed the diagnosis, but also disclosed the half-suspected presence of cholecystitis; for the latter the gall-bladder was drained.

In all four cases, then, ptosis of stomach and other organs had been correctly diagnosed. In one case only had there been a suspicion of cancer; this was negatived by operation. In none of the 4 cases was any evidence of gastric or duodenal ulcer found at operation.

One Case Diagnosed as Congenital Stenosis of Pylorus.

This case was that of a young child of 3½ months; operation disclosed no organic stenosis. The stenosis was probably spasmodic. The case is included in the series of cases dealt with in the critical survey of this paper as falling within the category and period. It may be noted, however, that it is, somewhat curiously, the only case within the period in which we have had occasion to make the diagnosis quoted, though in the years before and since the date-period marked for this inquiry we had occasion to see, and to deal surgically with, several cases of congenital hypertrophic stenosis of the pylorus: and in none of these was the diagnosis either difficult or erroneous.

One Case Diagnosed as a Pure Gastritis.

The patient, a young woman of 34 years of age, had had recurring symptoms for several years, but without any definite indications of ulcer. Her condition improved greatly under simple treatment, and when heard from a year later she reported herself as having continued well from the time she was under observation by us.

This happens to be the only case seen by us and recorded as a stomach case without indication of ulcer, but with some of the clinical effects common to ulcer as well as to simple stomachic disorder without ulcer. (The cases of gastroptosis come into another category, of course.) The physician and the medical wards would tell a different story. These records, it cannot be too clearly understood, are those of the surgeon and of the surgical wards.

One Case Diagnosed as Abdominal Adhesions, Two Years After Gastro-jejunostomy.

In this case medical treatment was advised and the patient reported "well" a year after.

One Case Diagnosed as Cholecystitis, Gall-stones, and Probable Duodenal Ulcer.

Here operation confirmed the correctness of the diagnosis, except that no active ulcer was found; old adhesions, however, were found between duodenum and gall-bladder.

One Case Diagnosed as Cholecystitis with Gall-stones.

The findings in this case were as follows:—

The gall-bladder condition and the presence of gall-stones were confirmed by operation; it was found, however, that there was also old pyloro-duodenal ulceration with resultant stenosis of the pylorus. Both lesions were relieved by operation, the one by cholecystostomy and drainage of the gall-bladder, and the other by gastro-jejunostomy.

One Case Diagnosed as Acute Appendicitis, with Perforation.

The findings in this case were as follows:—

Operation proved the diagnosis to be wrong, there being no appendicitis, but, in fact, a perforated duodenal ulcer. This was sutured and drainage was established. The patient did well and reported as "very well" two years later.

It seems worthy of special remark that this is the only case, occurring under our observation during the period under review, in which a duodenal perforation was mistaken for an appendix lesion. The case was seen after perforation had occurred, indeed some time after. And it is well known that, under these conditions, confusion must occasionally occur. So well recognised is this that one is constantly on the look-out for such a possibility, but as often happens with a patient very gravely ill after a perforation, and perhaps unable, either personally or through friends, to give anything like a clear history of the crisis or of the antecedent symptoms, the nature of the perforation must often be in some doubt, and mistakes will probably always take place occasionally. That in this series, containing, as it does, 21 cases diagnosed as duodenal ulcer, in 14 of which perforation had occurred, only this one case was wrongly diagnosed as being of the appendix, seems to us to support, rather than to discredit, our thesis that the diagnosis of these lesions can be made, as a rule, with a much greater degree of assurance than many writers and speakers would seem to be prepared to admit. It is worthy of note that the series contains no example of the converse error—i.e., in no case during the period covered by this inquiry did we operate on a patient for a supposed duodenal perforation and find the perforation to be of the appendix.

SUMMARY OF THE FOREGOING.

A survey of the 110 cases included in this somewhat limited but comprehensive series, as borne out by the details given in the more fully recorded digest above, shows that the diagnosis was correctly made in 94 cases. Of the 16 cases in which the diagnosis was not correct the error was not uniformly serious or material. Indeed, in some cases it was not easy to say that the term error ought to be applied to the discrepancy between the diagnosis made and the operation finding. Thus:—

Of 9 cases diagnosed as simple gastric ulcer, only 1 case was wrongly diagnosed, and even that one was recognised as duodenal (after perforation) prior to operation.

Of 38 cases diagnosed as pyloro-duodenal ulceration, only 2 were proved erroneously diagnosed, one being general visceroptosis, including gastroptosis, the other a case of cholecystitis and chronic appendicitis.

Of 21 cases diagnosed as definitely duodenal ulcer, 4 proved to be of another nature, but the error here could not be said to be of a serious order, the condition in all 4 being merely more extensive in location, and involving the pyloric region as well as the beginning of the duodenum—i.e., pyloro-duodenal ulceration instead of purely duodenal.

Of 26 cases diagnosed as certainly or probably cancer of the stomach, in only 5 did the diagnosis prove to be unjustified. In 4 of these 5 cases operation disclosed pyloro-duodenal ulceration (in one of them, complicated by other lesions); the remaining case, in which there was no operation, had an aftercourse which suggested that it was of the same order. At any rate, 5 cases only out of 26 diagnosed as certainly or probably malignant, proved to be non-malignant—not a very large or serious error, especially when put alongside the fact that in only one case out of the whole 110 was a malignant condition found where a simple condition had been diagnosed.

One case of supposed congenital stenosis of the pylorus was found to be of a simple spasmodic nature.

In one case of cholecystitis, with gall-stones, where duodenal ulceration was also suspected, there was no direct

evidence of the latter at operation, though some adhesions were found between duodenum and gall-bladder; while in another case of the same nature pyloro-duodenal ulceration was found where it had not been previously expected.

The remaining case of error was the last mentioned in the detailed report—viz., the case of perforation, in which the site of perforation had been diagnosed as in the appendix, but proved to be duodenal; no case of the converse error occurred in the series.

These, then, are the facts of this somewhat limited but at least tolerably comprehensive and illustrative series of 110 cases. As given above in detail, they are stated, to the best of our ability, in as fair and judicial a fashion as possible. The records on which they are based have been taken at face value, and we have desired to present them as accurately and fairly as possible, with no attempt to strain any point, or to claim as correct any diagnosis not fully borne out either by evidence disclosed at operation, by clinical signs and symptoms, or by ascertained facts of after-history. A sincere effort has been made to get at the real truth of the matter in every case, and we do not wish to claim more for the result of our inquiry than the undoubted facts and dispassionate weighing of the probabilities seem to justify. We submit the facts with a certain degree of confidence that they go a good way to justify our claim that the ordinary methods at the disposal of physician and surgeon, in the diagnosis of ulcers of stomach and duodenum, furnish, in almost every case, efficient and reliable means for recognition and differential diagnosis of these conditions, and that the fraction of error should generally be trifling. And we agree, in the main, with the contention of Dr. Clark, already quoted, that where error in diagnosis does occur, it is seldom or never due to any defect in the methods of investigation, physical, chemical, and clinical, at our disposal, nor to the erroneous or unreliable results of these tests, but almost always to inaccuracy in the deductions made therefrom.

Gastro-jejunostomy in the Treatment of Gastric and Duodenal Ulcers.

It has already been stated that, for the purpose of this part of our inquiry, we took steps to ascertain the later history of all the cases included in the series; this applied, therefore, to cases of cancer, as well as to the few cases of other conditions wrongly diagnosed. The questionnaire issued brought the information desired, and the replies were expressed in such a way as to greatly enhance the value of the evidence. We felt that in no other way would it be possible to say that the conclusions drawn were beyond suspicion. We might have relied on such information as was, in many cases, already at our disposal, such as our own records of the more immediate after-history. We might have supplemented such information by personal examination of whatever cases could be easily recalled for the purpose. As a matter of fact, we had evidence of this kind in many cases, and it served to confirm our new reports. But we felt that the only facts that would be accepted as completely credible were those derived directly from the patients themselves.

It will be seen presently that the questionnaire was very simple. Accompanying the form sent out was a circular letter couched in friendly fashion, but asking for nothing more than a plain and unvarnished statement of actual facts. A very gratifying number of replies was received. The questions asked appear as headings to the columns of the tabular list.

For the purpose of this inquiry we are not concerned with the replies received dealing with conditions—such as cancer of the stomach—other than simple ulcer of stomach or duodenum. The object of this part of the paper is to ascertain what value to attach to gastro-jejunostomy in the treatment of these conditions. We have extracted, accordingly, the facts concerning those cases of gastric ulcer, pyloro-duodenal ulcer, and duodenal ulcer which we had treated by means of gastro-jejunostomy, and in estimating the results we have endeavoured to weigh

up all the facts and indications of the patients' own reports, and having established a conclusion in each case by correlating the replies to all the separate inquiries in the questionnaire, placing the result, as estimated, in one of the following six categories: (1) complete recovery; (2) great improvement; (3) considerable improvement; (4) not much improvement; (5) doubtful or unknown; (6) death.

In arriving at our estimate in any case we have not been satisfied by a mere statement—e.g., of a simple affirmative—in reply to the third question of the questionnaire, in concluding that the case should be classed as a complete recovery. We have required that replies to other questions should bear this out fully—e.g., in the way of sustained or increased body weight, in respect to absence of pain or other symptoms, and in regard to ability to take ordinary food freely and without discomfort. This is borne out by reference to the tabular statement of the replies received.

The results of our inquiry are as follows, and they refer to 42 cases:—

Complete recovery	.. 28 cases	 66.6 per cent.
Greatly improved	.. 6 "	 14.3 "
Considerably improved	1 case	 2.4 "
Not much improved	.. 3 cases	 7.1 "
Doubtful	 1 case	 2.4 "
Death	 3 cases	 7.1 "

It will be seen from the above figures that, while complete recovery took place in 28 out of 42 cases in which gastro-jejunostomy was performed, or 66.6 per cent., the result of operation was to produce great improvement—up to the highest possible, as expressed in complete recovery, in 34 cases (i.e., 28 plus 6), or 80.9 per cent. Adding the "considerably improved" group also, the result works out at 83.3 per cent. Thus it may be said that over 83 per cent. of the cases were considerably improved, almost 81 per cent. were greatly improved, while 66.6 per cent. made a complete recovery.

Small Proportion of Unsatisfactory Results.

Against these figures there have to be considered 7 cases out of the total of 42 in which either death occurred, or not much improvement took place, or where the result was doubtful or unknown. Taking deaths first, in one case (gastric ulcer) death took place suddenly on the tenth day after operation from pulmonary embolism; the case had apparently proceeded satisfactorily up till that point. In the second case (pyloro-duodenal ulceration) the immediate result was good, but the patient died rather unexpectedly about two and a half months after the operation in a sanatorium, the cause of death being given as tuberculosis of the lung. In the third fatal case the operation included appendicectomy as well as gastro-jejunostomy, and there was no special difficulty; it was performed, however, during the height of the influenza epidemic, and the patient developed an acute influenzal bronchitis and broncho-pneumonia which led to death four days after operation.

The case classed as doubtful, the ultimate result being unknown, was that of a man who, prior to operation, had marked gastric tetany; the immediate result was a great improvement, but all efforts to trace the man after his dismissal from hospital have proved unavailing.

As regards the 3 cases where "not much improvement" has taken place, it may be confessed that their histories do not disclose any special reason for the failure.

The first was a man who had suffered for upwards of seven years from symptoms of pyloro-duodenal ulcer. He had great dilatation of the stomach, with ptosis of stomach and general visceroptosis. Also, he had many adhesions between the duodenum and gall-bladder. At operation it was noted that the first part of the duodenum was also greatly dilated. A little over a year after his operation he reported himself thus: "General condition slightly improved." *Complete recovery?*—"No; great headaches, as formerly, also flatulence." *Take food well?*—"Inclined to eat at any time—great thirst." *Pain?*—"Yes, very often in chest and back; no trouble with bowels; same weight as

TABULAR LIST OF CASES OF GASTRIC, PYLORO-DUODENAL, AND DUODENAL ULCER, SUBMITTED TO GASTRO-JEJUNOSTOMY, AND REPORTED ON IN THIS INQUIRY, WITH DETAILED ANSWERS TO QUESTIONNAIRE.

Cases Classified as having made a Complete Recovery.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Initials of patient.	Age	Sex	Pathological conditions (found or confirmed at operation).	How long had you been unwell before consulting me? (in years).	How have you been since consulting me, or since being under my care?	Have you made a complete recovery?	Do you have now, or at any time, any of your former symptoms?	Do you take food well?	Do you have any pain after food now?	Do you have any trouble with the bowels?	Have you gained or lost weight since treatment or operation?	Have you ever any sickness, vomiting, or bleeding (by mouth)?	Have you had any bleeding by motions or flary motions since treatment?	Time in years elapsed from date of operation to report.
J. C.	M.	40	P.D.U., chr. P. sten. Di. sto.	6	Splendid health.	Complete recovery.	None.	Can eat anything.	None.	Bowels move once daily without medicine. Just a slight weakness.	Gained 9 lb.	None.	—	1 1/12
F. C.	M.	51	P.D.U., chr.	7	Very well.	Yes.	No.	Yes.	No.	No.	Gained 1 1/2 st.	No.	No.	3 4/12
E. D.	F.	26	P.D.U., chr. P. sten. Di.	2	Enjoying good health.	Yes.	No.	Yes.	No.	No.	Gained 1 1/2 st.	No.	No.	3 4/12
M. D.	M.	51	P.D.U., chr. P. sten. Di. sto.	4	Well.	Yes.	No.	Yes.	No.	No.	Gained weight.	No.	No.	8/12
C. D.	M.	37	P.D.U., chr. P. sten. Di. sto.	10	In excellent health.	Yes.	Once or twice, slight heartburn. Not at any time.	Appetite splendid.	None.	No trouble, but motions often loose.	Gained 15 lb.	None.	None.	1 7/12
M. D.	F.	31	P.D.U., chr. Crateriform U. "Tumour" (suggesting cancer).	13	Keeping very well.	Certain.	Very occasionally, and slight.	Can take my food well, almost anything.	No.	No.	Gained over 1 1/2 st.	None.	None.	10/12
J. G.	M.	50	P.D.U., chr. P. sten. Gall-stones; (Cho. at same time.)	30	80 per cent. better.	Practically.	No.	Yes.	Very occasionally.	Have to take a laxative 2 or 3 times weekly.	Gained in first 24 years; in last 6 months lost 7 lb. in first few months, and much more since.	Very occasionally.	Only once, "piles."	3 1/12
E. H.	F.	45	P.D.U., chr. P. sten. Di. sto. Hypertrophy.	29	Very well.	Yes.	No.	Very well.	No.	No.	Gained 7 lb. in first few months, and much more since.	No.	No.	3 6/12
J. H.	M.	44	P.D.U., chr. Perforation. Di. sto. (Perf. sutured at same time.)	20+	Never felt better.	Most complete and satisfactory.	Never had or have.	Yes, and enjoy it.	No.	No.	Gained.	Never.	Never.	1 10/12
M. McK.	F.	37	P.D.U., chr. P. sten.	2	Much better.	Doing very well.	Head-ache. No.	Yes.	None.	Constipation all along. Still require to take Glauber salts thrice weekly.	Gained.	No.	No.	10/12
W. McK.	M.	30	P.D.U., chr. P. sten. Chr. A. (Ay. performed at same time as G.J.)	8/12	Able to play golf and football with no ill-effects.	Yes.	No.	Yes.	No.	No.	Gained.	No.	No.	3/12
T. M. M.	M.	34	P.D.U., chr. P. sten. Di. sto.	10	Splendid health.	Yes.	No.	Extra well.	No.	No.	Gained.	No.	No.	3 7/12
A. P.	M.	29	P.D.U., chr. involving lesser curvature also. Hæmorrhage. "Tumour."	8	Never better all my life. In a new world since the operation.	Yes.	Slight pain once for a few moments.	Yes, enormous quantity.	None whatever.	No.	Gained 13 lb.	Never.	Never.	1 2/12
J. R.	M.	28	P.D.U., chr. P. sten. Di. sto.	4	Perfectly well.	Yes.	No.	Well.	No.	No.	Gained.	No.	A little.	8/12
J. S.	M.	50	P.D.U., chr. P. sten. Di. sto. Diverticulum of duodenum, with narrowing.	15	Splendid health.	Yes.	No.	Always a good appetite.	No.	No.	Gained 20 lb. since operation.	No.	No.	3/12
J. W.	M.	38	P.D.U., chr. P. sten. Di. sto. Adhesions to gall-bladder, chr. A. (Ay. performed at same time as G.J.)	9	Extra well.	Yes.	No.	Can eat anything.	No.	No.	Lost 7 lb. (A year after operation diabetes diagnosed.)	No.	No.	2 9/12

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
H. W.	M.	31	P.D.U., chr. P. sten. Di. sto.	1	Excellent health.	Yes.	No.	Yes.	No.	No.	No.	Gained a stone.	No.	No.	4 1/2
R. R.	M.	29	P.D.U., chr. Perforation 3 years before. Perforation again, 6 hours before (site lesser curvature, pylorus); suture, and G.J. sto. (Cancer suspected.)	4	Immediate result excellent. Went abroad; no reply to questionnaire.	—	—	—	—	—	—	—	—	—	4 1/2
H. McT.	M.	42	P.D.U., chr. P. sten. Di. sto. (Cancer suspected.)	2	Great deal better.	Yes.	—	Palpitation at times.	Yes.	No.	Sometimes.	Gained.	No.	No.	10 1/2
M. Y.	F.	43	P.D.U., chr. P. sten. Di. sto. (Cancer suspected.)	30	A different woman since.	Yes.	No.	No.	Yes.	Some fullness after eating.	No.	Gained a little.	—	No.	3 5/12
H. H.	M.	37	P.D.U., chr. Extensive ulceration. (Cancer suspected.)	10	Very well.	Yes.	No.	No.	Yes.	No.	No.	Gained.	No.	No.	3
W. D. H.	M.	56	P.D.U., chr., or cancer.	20 +	This question not answered.	Yes.	No.	No.	Yes.	No.	No.	Gained.	—	No.	7 1/2
Mrs. N.	F.	50	P.D.U., chr. P. sten. Di. sto. Gall-stones. (Cho. performed at same time as G.J.)	4	Steadily improving.	Yes.	No.	No.	Yes.	No.	None now.	Gained half a stone.	No.	No.	5 1/2
J. L.	M.	45	Duodenal U., chr. Perforation week before; adhesions; dilatation.	20	Extra well; at hard work; have to use 28 lb. hammer. Best of health.	Absolutely.	Never a symptom.	Yes.	Very well.	No.	No.	Gained 1 1/2 st.	None.	None.	1 1/2
J. M.	M.	20	Duodenal U., chr. Perforation 4 hours before. Suture of ulcer at same time as G.J.	1 1/2	Immediate result excellent. Went abroad, to Australia. 2 years ago.	—	No.	No.	Yes.	No.	No.	Gained.	No.	No.	1
G. A.	M.	32	Duodenal U., chr. Hemorrhage, repeated. P. sten.	3	Immediate result excellent. Went abroad, to Australia. All right.	—	—	—	—	—	—	—	—	—	2 10/12
J. H.	M.	27	Duodenal U., chr. P. sten.	7	In perfect health.	Yes.	No.	No.	Can take any kind of food.	None.	Have to watch them at times.	Gained a stone.	None.	None.	2 3/12
P. McL.	M.	51	Duodenal U., chr.	7	In perfect health.	Yes.	No.	No.	Yes.	None whatever.	No.	Gained 2 st.	No.	No.	2
<i>Cases Classified as Greatly Improved.</i>															
Mrs. D.	F.	49	P.D.U., chr. P. sten. Hemorrhages, repeated. Viscerospasms.	4	Not well yet.	No.	No.	Better.	No.	No.	None.	Gained at first; later stationary.	Two months ago, a little vomiting; none since. Taken sick occasionally.	No.	10/12
J. F.	M.	28	P.D.U., chr. P. sten. Di. sto. A., chr. (Ay. at same time as G.J.)	5	Much improved.	Not quite.	Some-times.	Yes.	Yes.	No.	Sometimes.	Gained weight.	No.	No.	2 7/12
Mrs. K.	F.	42	P.D.U., chr. Hemorrhage, repeated and severe.	10/12	Keeping improving.	Not quite.	Some-times slight burning.	Yes.	Yes.	No.	No.	Gained.	Some sickness.	No.	4/12
C. McG.	M.	55	P.D.U., chr. P. sten. Di. sto.	13	A good deal better.	Not quite.	Yes.	Better than before some-times.	Occasion-ally.	Occasion-ally.	Not nearly so much.	Very little change.	Sometimes sickness.	No.	10/12
W. G.	M.	30	P.D.U., chr. P. sten. Di. sto. Perforation 2 years before.	4	Pain still at times, but not bad.	No.	Yes.	Yes.	Yes.	—	Not much.	Gained 1 1/2 st.	No.	No.	2 7/12
L. C.	M.	33	P.D.U., chr. Perforation 2 years before.	2 +	Much improved.	No.	Occasion-ally.	Yes.	Yes.	Seldom.	Constipation.	Gained a little.	On a few occasions sickness.	Piles.	3/12
<i>Cases Classified as Considerably Improved.</i>															
D. G.	M.	36	P.D.U., chr. P. sten. Di. sto. Renal colic.	1 +	Vomited bile at first fairly often. Now ceased.	Better in health now.	Yes, at times acidity.	Have to be very careful not to eat too much.	No.	No.	No.	Gained 1/2 st.	Only when I have bile.	Only once.	2 1/2
G. H.	M.	30	P.D.U., chr. Di. sto. (extreme). Viscerospasms.	7	General condition improved.	No.	Yes, headache and flatulence.	No bother, except occasional pain.	Yes.	No bother, except occasional pain.	—	Same weight as formerly.	Occasional vomiting.	No.	1 2/12

TABULAR LIST OF CASES OF GASTRIC, PYLORO-DUODENAL, AND DUODENAL ULCER, SUBMITTED TO GASTRO-JEJUNOSTOMY, AND REPORTED ON IN THIS INQUIRY, WITH DETAILED ANSWERS TO QUESTIONNAIRE.

Cases Classed as Not Much Improved—continued.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Initials of patient.	Age.	Sex.	Pathological conditions (found or confirmed at operation).	How long had you been unwell before consulting me? (in years).	How have you been since consulting me, or since being under my care?	Have you made a complete recovery?	Do you have now, or at any time, any of your former symptoms?	Do you take food well?	Do you have any pain after food now?	Do you have any trouble with the bowels?	Have you gained or lost weight since treatment or operation?	Have you ever any sickness, vomiting, or bleeding (by mouth)?	Have you had any bleeding by bowels (or tarry motions) since treatment?	Time in years elapsed from date of operation.
R. S.	M.	36	P.D.U., chr. P. sten. Di. sto. Later, symptoms of tabes, with positive Wassermann reaction, Sc.	3 +	Not off sick list. Dec., 1920, reported on from another hospital.	No.	Yes, burning pain, vomiting bile.	Yes.	No.	No.	Gained 1 st., 2 lb.	Sickness and vomiting every six weeks.	Occasionally.	2 2/12
J. S.	M.	61	P.D.U., chr. P. sten. Di. sto. Adhesions. Cancer suspected.	3	About the same.	No.	Yes, vomiting (bilious).	No.	No.	Constipation.	Lost ½ lb.	Yes.	No.	4/12
A. McK.	M.	28	P.D.U., chr. (gastric?). Tetany	2 +	No reply received, but immediate result good—believed to have relapsed later.	—	—	—	—	—	—	—	—	No report.

Case Classed as Doubtful.

P.D.U. = pyloro-duodenal ulcer. P. sten. = pyloric stenosis. Di. sto. = dilated stomach. Chr. = chronic. G.J. = gastro-jejunostomy. A. = appendicitis. U. = ulcer. Ay. = appendectomy.

formerly: occasional sickness, but no vomiting or bleeding; no bleeding by bowel or tarry motions." The only other fact in this case calling for special note is that he had a bad attack of bilateral parotitis during the early period following operation.

The second was a man of 36 years, who had had for upwards of three years symptoms suggestive of chronic pyloro-duodenal ulcer, with great dilatation of stomach. The diagnosis was confirmed at operation. This man's report after two years was almost altogether unfavourable; information of his condition was obtained from another hospital shortly before this survey was begun. He now had symptoms strongly suggestive of "gastric crises" of tabes; also a positive Wassermann reaction had been obtained. He had gained, however, over a stone in weight, and had frequent periods—six or seven weeks—of comparative freedom from sickness and vomiting.

The third was a man of over 60 years, who had had digestive trouble for over three years. His symptoms, borne out to some extent by the operation finding, rather suggested a chronic pyloro-duodenal ulcer (there was more than a suspicion of a malignant element). At operation a definite healed ulcer of the lesser curvature of the stomach was also found. The man was, however, in a poor state of health otherwise, with degenerated arteries, and more than a little inclined to mental depression, almost to melancholia. His report after operation gives the result, from his point of view, as not at all satisfactory: "Slight loss of weight; vomiting of bile (?); do not take food well; condition unchanged." His mental depression remains, and may have militated against recovery and coloured his interpretation of the result. In any case, the interval which has elapsed between the date of operation and the date of the estimated result seems altogether too short to admit of a reliable test of the treatment.

What may be regarded, then, as the failures, from whatever cause, comprise 6 cases out of the 42—three deaths and 3 cases in which no definite improvement was achieved as the result of gastro-jejunostomy. a percentage of, say, 14, against a percentage of 66.6 complete recoveries, of 81 above the "great improvement" line, and of 83.3 above the "considerable improvement" line. Moreover, in each case of death, the fatal issue may almost be ascribed to an accidental circumstance, so that the fatal issue in these cases can hardly tell against gastro-jejunostomy as a method of treatment in such conditions. It may fairly be contended that only the 3 cases of actual failure—"not much improvement"—ought to be considered in comparison with the great bulk of the series.

For comparative purposes the duration of symptoms in each case prior to operation and the length of the period between operation and the date of the report are here given.

Complete Recovery (28).

A = Duration of symptoms prior to operation, in years.
B = Period between operation and report, in years.

A	B	A	B	A	B	A	B
6 .. 11/12	29 .. 3 6/12	15 .. 3/12	20 .. 7/12	6 .. 3 4/12	20 (+) 1 10/12	9 .. 2 9/12	4 .. 5/12
7 .. 3 4/12	2 .. 10/12	1 .. 4/12	20 .. 1 8/12	8 .. 8/12	8/12 .. 3/12	4 .. 4/12	1 .. 1
10 .. 1 7/12	10 .. 3 7/12	2 .. 10/12	3 .. 2 10/12	13 .. 10/12	8 .. 1 2/12	30 .. 3 5/12	7 .. 2 3/12
13 .. 10/12	4 .. 8/12	10 .. 3	7 .. 2	30 .. 3 1/12	4 .. 8/12	10 .. 3	7 .. 2

The average duration of symptoms in the 28 cases classed as having made a complete recovery was ten years; the verdict of complete recovery is based on an average period of observation, subsequent to the operation of gastro-jejunostomy, of one year and eight months.

Greatly Improved (6).

A = Duration of symptoms prior to operation, in years.
B = Period between operation and report, in years.

A	B	A	B	A	B
4 .. 10/12	10 .. 4/12	4 .. 2 7/12	5 .. 2 7/12	13 .. 10/12	2 .. 3

This table shows that the average duration of symptoms in the 6 "greatly improved" cases was 4 5/6 years, the average period following operation being one year and eight months.

Considerably Improved (1).

Duration of symptoms prior to operation: 1 year +
Period between operation and report: 2 8/12 years.
The figures here are: 1 year, and 2 years and 8 months.

Not Much Improved (3).

A = Duration of symptoms prior to operation, in years.
B = Period between operation and report, in years.

A	B	A	B
7	1 2/12	3	4/12
3 (+)	2 2/12		

The average duration of symptoms prior to operation of these 3 "not much improved" cases works out as 4½ years; the average period of observation subsequent to operation was one year and two months.

Doubtful (1).

Final result unknown, though early result satisfactory.
Duration of symptoms prior to operation: 2 years.

Deaths (3).

Estimated duration of symptoms prior to operation: 5, 5, and 15 years.

The average duration of symptoms prior to operation in these 3 cases ending fatally was thus six years.

Conditions for which Operation was Performed.

The following list shows in tabular form the conditions for which the operation was carried out in the group of 42 cases.

It may be noted that in only one case was the anterior operation employed. In 41 cases the method followed was the usual posterior gastro-jejunostomy, by the "no loop" procedure. In none of the cases was the pylorus either constricted deliberately or divided. We believe that closure of the pylorus is neither necessary nor indeed advisable; we are almost prepared to contend that it is not justifiable on any physiological ground. Nor do we believe that it is of value as a preventive of the much-talked of and dreaded "bilious vomiting." We are able to record here that out of the whole series of 42 cases in only 3 did "bilious vomiting" occur.

Gastro-jejunostomy alone (33 cases):

Gastric ulcer	1	Duodenal ulcer ..	4
P.-D. ulceration	28		

Gastro-jejunostomy plus suture of a perforated ulcer and peritoneal drainage (3 cases):

P.-D. ulceration	2	Duodenal ulcer ..	1
------------------------	---	-------------------	---

Gastro-jejunostomy plus appendicectomy (4 cases):

P.-D. ulcer plus	3	Duodenal ulcer plus ..	1
appendicitis		appendicitis	

Gastro-jejunostomy plus cholecystostomy (2 cases):

P.-D. ulcer (chronic) plus cholecystitis (gall-stones), 2.	
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Bilious Vomiting as a Complication of Gastro-jejunostomy.

It may be noted that of the 3 cases in which "bilious vomiting" occurred, in one this complication seemed to be related in some way to a renal calculus, which was passed about three weeks after the operation; the vomiting became very infrequent thereafter, and in a few months passed off altogether. In the other 2 cases it persisted for the period which the observation covered.

One of the two was the case already referred to as "not much improved," in which, later on, evidences of tabes presented themselves, with gastric crises, positive Wassermann reaction, &c. The other case was that of a man suspected of having cancer of the stomach, who had had symptoms of chronic ulcer for upwards of three years. Operation disclosed the presence of chronic pyloro-duodenal ulcer, with stenosis of the pylorus and adhesions; also great dilatation of the stomach. The healed ulcer at the pylorus region was chiefly on the lesser curvature. In this case the time between operation and date of report was very short, and improvement, both as regards bilious vomiting and in other ways, may still be looked for.

In general, our conclusion on the subject of the "bilious or regurgitant vomiting," of which so much has been written in connexion with gastro-jejunostomy, is that this much feared complication very rarely occurs, and, indeed, should not occur, where the operation is performed for some gross organic lesion of the pyloro-duodenal junction, and where the "no loop" method of operation is

used. The possibility of such a complication seldom enters our calculations in respect of any case with which we have to deal.

It may here be mentioned—although it does not concern the purpose of this present survey—that the operation of gastro-jejunostomy was carried out by us in a considerable number of other cases—such as gastric cancer—otherwise inoperable, and with satisfactory results in the direction of palliation. Its applicability in such conditions cannot be disputed, nor can its beneficial effects be denied. We met with no "bilious vomiting" amongst the cases of gastric cancer in which it was employed.

ADDENDUM BY A. Y.

As indicated above, the survey applies to a series of cases within a comparatively short and well-defined period of three and a half years, the detailed particulars regarding which have been easily available for reference. In nearly all cases where gastro-jejunostomy was performed within this period, on account of gastric, pyloro-duodenal, or duodenal ulcer, the details of the immediate aftercourse have been known to us, and the later progress has been ascertained in response to the questionnaire. It may be of interest—it may even be necessary—to say that the figures do not represent anything like the total number of cases that might have been drawn upon by myself or my helpers for the purpose of statistical comparison. They form, however, a sufficiently representative and self-contained group, capable of consideration within workable limits, and are put forward on that footing.

A very brief note may be given here of the statistics relating to other occasions upon which I have performed the operation of gastro-jejunostomy—both before the period under review and subsequently—for just such conditions as are referred to in this survey—viz., ulcers of the stomach and duodenum. About a third of these were carried out in the Broadstone Jubilee Hospital, Port Glasgow; the remainder were in the District Hospitals, Glasgow, in the Western Infirmary, Glasgow, and in private practice.

The number does not include any of those other operations on stomach or duodenum, such as gastrotomy, pyloroplasty, pylorodiasis, pylorectomy, partial gastrectomy for chronic ulcer or cancer, or any of the large number of operations for simple perforation of stomach or duodenal ulcer. Nor does it include any cases in which gastro-jejunostomy was performed as a palliative procedure in otherwise inoperable cancer of the pyloric segment, although I have done a considerable number of such operations. The numbers apply exclusively to cases where gastro-jejunostomy was performed for simple ulcer and its near or remote effects. As to the results, these are known only in a general way, but I believe they are, and have been, certainly not inferior to the results in the more detailed series presented above. In none of them was there bilious regurgitation of any consequence; indeed, it occurred in only one case, and was transient and negligible.

The operation was carried out for the following conditions:—

	No. of cases.
1. Gastric ulcer	2
2. Pyloro-duodenal ulcer (P.D.U.)	36
3. Duodenal ulcer	11
4. P.D.U., combined with appendicitis (appendicectomy carried out at same time)	4
5. P.D.U., where an old gastro-jejunostomy opening had become contracted (a new gastro-jejunostomy being made)	1
6. Hour-glass stomach, resulting from chronic ulcer of the lesser curvature (gastro-gastrostomy being done at the same time as the gastro-jejunostomy)	2
Additional total	56

Of these additional 56 cases three died. In one, a case of duodenal ulcer, death occurred from syncope soon after operation. Two deaths were due to pneumonia, both being cases of pyloro-duodenal ulcer; one of them died on the third day from an acute broncho-pneumonia, the other from an ordinary lobar pneumonia on the fourteenth day after operation.

THE AFTER-EFFECTS OF WAR
NEPHRITIS.¹By G. L. THORNTON, M.C., M.R.C.P. LOND.,
M.R.C.S. ENG.LIEUT.-COLONEL, R.A.M.C. (T.A.); DEPUTY COMMISSIONER OF
MEDICAL SERVICES, MINISTRY OF PENSIONS.

THE subject of this paper has deservedly attracted considerable attention during the past seven years, and while for the first four of these years we were menaced with a disease which had the effect of rendering a very serious number of men permanently unfit for the fighting line, our interest has subsequently been maintained in the study of the after-effects as related to the resumption of ordinary civil employment. When the paper was originally communicated in a fuller form to a medical society the first part comprised a personal narration of cases of acute nephritis as observed when they first reported sick with symptoms of that disability. In view, however, of the extensive nature of the literature already set forth concerning the earlier stages of the affection, it has been thought best to confine this publication to the second portion of the original paper, which deals mainly with the after-effects. The deductions which follow have been drawn from the study of 100 unselected cases of ex-soldiers examined in respect of their claims to pensions for nephritis at periods ranging from eight to three years after the onset of that disease.

General Scheme of Inquiry.

The investigation was originally instituted with a view to following up the significance of tube casts, a subject in which I had been interested several years before the war, but it seemed to me that a more general inquiry might be of value, and although I have personally investigated the urine in all cases, I am indebted to Drs. F. R. Bremner, F. A. Roper, T. R. C. Whipham and J. White, of the Ministry of Pensions Medical Boards, for the greater number of the systemic examinations. The general scheme of the inquiry adopted for the whole of the cases has been tabulated so as to distinguish officers and other ranks; among the former are included the particulars of one nursing sister. The age at onset, date, and locality have been noted wherever possible. The systemic examination has been noted under separate headings for A.C.D., impulse, cardiac sounds, pulse-rate, and description of arterial wall, blood pressure, oedema, condition of lungs, and general remarks, including a summary of the man's incapacity without entering into any detail of figures which should rightly be a matter for official returns alone.

The routine examination of the urine has included estimation of urea, calculation of the diastatic index, estimation of albumin (where present) by Esbach's albuminometer, and the microscopical examination of the centrifuged deposit. The methods of MacLean have been followed in estimating urea—viz., by giving 15 g. urea by mouth immediately after the patient has emptied the bladder. This amount is noted as also the amounts voided after intervals of one and two hours. The third voiding is, as a rule, selected for estimating the urea. We can thus place some value on the figure of the N. excretion and gauge the degree of polyuria if present.

In this series of 100 cases, examinations relate to four officers and one nursing sister, but it would not be a fair deduction to take account of the proportion, in that the figure represents all officers examined for nephritis since demobilisation, whereas the analysis of the reports on the men is not based upon the total number who have passed through the hands of boards. The true figure would be considerably below the average proportion of officers to men in a battalion. Table I. shows the age incidence of four officers, one nursing sister, and 100 men from the series.

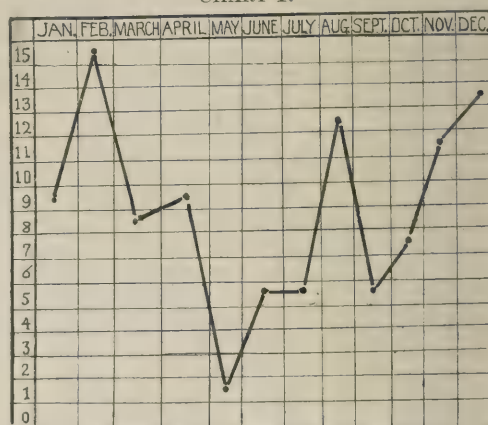
¹ Based upon a paper read before the Devon and Exeter Medico-Chirurgical Society.

TABLE I.

Age.	Officers.	Nursing sisters.	Men.
Under 20	—	—	6
20-25	3	1	17
25-30	—	—	23
30-35	—	—	21
35-40	—	—	20
40-45	—	—	9
45-50	1	—	4
Totals	4	1	100

The chief point for comment in Table I. lies in the comparatively low figure of the 20 to 25 period for men—an age which would be well represented in the line after the first year of the war. The officers' figures are too small for comparison.

CHART 1.



Illustrating month of onset in 100 cases of nephritis, 1914-1920.

Date of Onset. (See Charts 1 and 2.)—It is worth noting that two of the cases occurred in 1914—one in August, the other in October—for some writers have regarded nephritis as almost unknown in the army during the war until 1915. One of these cases, aged 33, was a reservist, R.A.M.C., and had been working as a clerk in civil life. He contracted nephritis in August, 1914, during the retreat from Mons, and informs me that, in spite of the month, he suffered much exposure at night during this period. The charts show the gradual rise from 1914-15, and the steeple ascent to 1917, when the climax was reached. In 1919 appear the effects of cessation of active warfare combined with demobilisation.

No useful figures can be given as to locality, but the cases are drawn from every theatre of war with exception of East Africa. Cases occurring in the Royal Navy represent only 2 per cent. of the series.

History of Onset.—This is difficult to obtain with any accuracy, as we must frequently rely on the man's own statement, except for the brief diagnosis on Army Forms B. 103 and 178. Worthy of mention are the following examples: Diarrhoea; laryngitis with bad cold; influenza (?); bronchitis; invalided home with bronchitis—on mined hospital ship—exposure in water—nephritis; followed trench fever; onset with shivering and tender loins; still has attacks resembling P.U.O. (T.F.); trench fever and bronchitis. Two cases of aggravation originally occurred, one after "purpura," and the other after "acute rheumatism"—recorded in documents.

Cases severe at onset are occasionally recorded. Most marked are: (1) Nursing sister, aged 28 at onset, October, 1917, France. Uræmic convulsions and general oedema; still greatly incapacitated. (2) Gunner, R.G.A., aged 40, onset 2/3/17, France. Uræmic fits, general oedema, venesection; mild to moderate incapacity now. (3) Private, R.A.F., aged 34, onset February, 1917, France. Severe onset, suppression, hæmaturia; mild to moderate incapacity now.

Subjective Symptoms.—Headache in a large proportion, and frequent accompanying dizziness; breathlessness in about one-fifth of cases; vomiting 7 cases; hæmaturia (intermittent) in a very few cases—2 at least of which have subsequently been rediagnosed as calculus. Neurasthenic symptoms have been fairly frequent.

General Appearance.—Thirty per cent. have shown very little or no evidence of anæmia or debility. Anæmia has been noted to a moderate extent in about 45 per cent. Twenty-five per cent. have shown evidence of dilated capillaries—marked anæmia, dyspnœa, &c.—sufficient to stamp them at once as greatly incapacitated. Several have shown emaciation, and a general condition which has suggested reference to the tuberculosis officer for observation.

Systemic Examination.—Increase in the area of cardiac dullness was noted in 34 cases, but in only

identical case; same age, onset 1916. The cardiac condition is even less satisfactory, auricular fibrillation having developed recently.

Edema.—This has been difficult to estimate accurately, as it so frequently clears up in mild cases a short time after rising, and we have then only the man's own statement as evidence at time of examination. Twenty-seven have, however, showed slight indication, such as puffiness of the eyelids and slight pitting of the feet and ankles; six showed moderate evidence, and two considerable.

Lungs.—Pulmonary complications have not been common—seven were found to have rhonchi and moist sounds at the bases, and in one there are suspicious physical signs at the left apex.

Eye.—It had not been practicable to obtain a routine examination of the fundus, although Dr. G. P. Hawker has kindly investigated one or two suspected cases, but as far as I am aware no gross lesion has been found in any case in this series.

Urine.

Volume.—It is, of course, impossible to obtain an exact measurement of the 24 hours' output in the majority of these examinations, but MacLean's urea test and the measurement of voidings, one or two hours after ingestion of the urea, provide useful information, particularly perhaps in that urea, having a slight diuretic influence, measurements below 300 c.cm. can be regarded as indication of absence of polyuria. Men's statements are, of course, often unreliable, and the frequent assertion, in the words of the Psalmist, that a man's reins chasten him in the night season, has often been unsupported by evidence of polyuria at the time of the examination or by the presence of albumin or casts. In 51 cases there has been evidence of some increase, and in 49 no evidence. The largest measurement was noted personally on Feb. 11th, 1922. This man passed a total of 1455 c.cm., 180 c.cm. to empty his bladder, and 1275 c.cm. in one or two hours after the urea test. He is aged 42, was wounded and gassed in France, and found to have nephritis on admission to hospital. He now shows considerable circulatory embarrassment in addition to evidence of contracted kidney. There was no reduction of Fehling.

Specific Gravity.—This is unreliable as ascertained at one short period of the day, but taken for what it is worth the average has not exceeded 1010.

Albumin.—The nitric acid ring test has been employed in all cases, and except where the merest trace has been under consideration the amount has been estimated with Esbach's albuminometer. Albumin has been found present in 65 per cent. and absent in 35 per cent.

Cases.	Estimation (Esbach's scale).	Cases.	Estimation (Esbach's scale).
51 ..	below 0.05 %	1 ..	below 0.15-0.2 %
6 ..	.. 0.05-0.1 %	3 ..	.. 0.25-0.3 %
4 ..	.. 0.1-0.15 %		

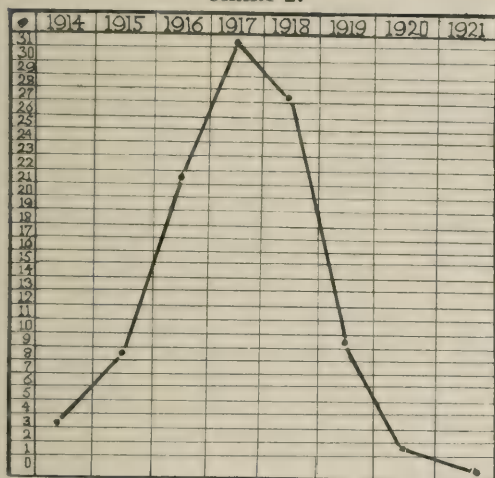
In 51 cases, therefore, the reading is low and represents little more than traces, but at the risk of appearing pedantic I would call attention to the common error of not appreciating—when calculating percentages—that Esbach's instrument represents grammes per litre.

Urea.—Estimation of urea is, needless to say, of little value when undertaken with a casual sample, but the method devised by MacLean provides a very fair appreciation of the efficiency of nitrogen excretion in a large number of cases, and checked by the diastatic reaction we are able to comment further on those cases where the excretion percentage has fallen low owing to diuresis. Hypobromite of soda solution has been freshly made for each case, and the instrument used has been the modified Doremus with tap. Albumin where present has always been separated from the sample for estimation of urea.

The following are the readings in 110 cases:—

Urea.	Cases.	Urea.	Cases.
Under 0.5 %	3	Under 1.5-2.0 %	29
.. 1.0 %	16	.. 2.0-3.0 %	26
.. 1.0-1.5 %	25	.. 3.0-4.0 %	14
Average for 110 cases—1.8.			
62			

CHART 2.



Illustrating year of incidence in 100 cases of nephritis.

two cases was the apex beat found outside the mid-clavicular line. In 86 cases where the impulse has been accurately noted this has been located in the fifth space in 80 instances and in the sixth space in six. Variations in the first sound have been reported in 29 cases, and accentuation of the second sound in the same number. Murmurs, chiefly apical systolic, have been recorded in 10 cases. One case has developed an aortic diastolic murmur, and in another of some uncertainty, not included in the series, nephritis is supposed to have preceded aortic disease. I have lately made use of the differential stethoscope (Leyton's original pattern) in reviewing a few of the more serious cases, and the readings tend to show a considerable increase in the intensity ratio on the part of the second sound, but with a loss of not more than 20 per cent. in the value of the first sound. The pulse-rate requires no special comment, except that it is by no means easy to gauge accurately at a medical board, when the man is frequently over-anxious and excited.

Arterial Wall.—This has been found thickened in 45 cases. Descriptions vary somewhat at different fingers, so that it would be misleading to give the sub-classifications of the various observers of the series.

Blood Pressure.—This has been noted under 110 in 1 case; 110-120 in 3 cases, 120-130 in 11 cases, 130-140 in 17, 140-150 in 33, 150-160 in 21, 160-170 in 4, 170-180 in 2, and 190-200 in 1 case. One case was found to have a blood pressure of 260 and another of 230. The case with 260 is now aged 50; onset of nephritis, July, 1918; area of cardiac dullness increased three-quarters to right apex beat in sixth interspace; systolic murmur at apex; arterial wall greatly thickened; urine, sp. gr., 1010; albumin, 0.05 per cent. (Esbach); urea, 1.0 per cent.; diastatic index, 2; granular and hyaline casts in every field. The case with blood pressure 230 relates to an almost

It has been calculated that the percentage of urea passed one to two hours after ingestion of 15 g. of urea should be from 2 to 4 per cent.

Diastatic Index.—This has been ascertained in all but a few cases where the urea excretion was within normal limits and other signs negative. Here again the test is of greater reliability if undertaken with the mixed urine of 24 hours, but nevertheless the information obtained from an examination sample is of considerable value as a control to the urea estimation, and in these 100 cases the reading has generally coincided with the general clinical feature of the case, whereas the urea has not infrequently proved the only sign of ill-omen. I can find no instance where the diastatic index was normal in severe cases, where, as Dr. F. A. Roper has reminded me, we should consider the possibility of pancreatic disease and carry the test further than the 20-unit tube, which proves sufficient for a gauge of renal efficiency alone.

I give the following figures for 93 cases in the series:—

Units.	Cases.	Units.	Cases.
1	1*	6.6	23
2	6	10	34
3.3	16	20	13

Average=8.7 units.

* Urea 0.2; diuresis very great, severe case.

For comparison with the urea test the average urea percentage has worked out $\frac{1.8}{8.7}$.

diastatic index $\frac{U}{D} = \frac{3}{20}$.

The calculation has been carried out invariably with freshly prepared starch solution, and the starch obtained from the same reliable source—with this provision there is little risk of error if caution is applied in dissolving the starch—and one is only content with a clear solution.

Tube Casts.—These have been noted in 49 cases, and have been sought for with extreme care. In my opinion this figure should be considered a low estimate owing to the fact that in many cases where diuresis has been moderate or excessive a negative finding should not be final, and in all probability the examination of the centrifuged deposit of the mixed 24 hours' urine would bring this percentage appreciably higher.

Differentiation of Casts.—Hyaline casts alone were noted in seven cases, and with granular or in association with epithelial or blood casts in 44 cases. Blood cells (as a rule a few scattered red blood cells) were found in association with casts in 19 cases, but true blood casts symptomatic of acute or subacute relapses have been rarely found. Casts were found unassociated with albumin in eight cases, and albumin (not exceeding a trace²) was noted in 31 cases, where casts could not be found in the urinary sediment. The urine was examined fresh from the mixed samples and as a general rule after four minutes centrifugalisation. A general summary of the cases where casts were found in the urine shows in table form that where hyaline casts alone were noted the sum-total of the findings demonstrated an incapacity ranging from very slight to moderate—the tendency being to slight.

Capacity for Work.

A general summary of cases as regards their capacity for work, based upon the sum-total of the systemic examinations and urine analysis, is as follows:—

Very slight incapacity	20
Slight to moderate	49
Considerable	17
Only fit for lightest occupation	8
Total incapacity	1
Died	1
Uncertain	4

100

Table II. shows the association of casts and albumin or negative findings of the same in these various

² Larger amounts of albumin were found in cases where the diagnosis was found to be pyelitis or cystitis, but these are not included in the series.

TABLE II.—Illustrating the Degree of Incapacity in Cases where Casts and Albumin were Present Together, Present Singly, or Both Absent.

Incapacity.	Hyaline casts only.	Mixed casts. No albumin.	Albumin and casts.	Albumin and no casts.	No casts and no albumin.	Total.
Very slight	2	2	3	3	10	20
Slight to moderate	3	5	18	18	5	49
Considerable	—	1	5	9	2	17
Only fit for light occupation	—	—	7	—	1	8
Total incapacity	—	—	1	—	—	1
Died	—	—	1	—	—	1
Uncertain	2	—	1	1	—	4
Totals of cases	7	8	36	31	18	100

grades of incapacity. These deductions are merely drawn from the study of 100 unselected cases of ex-Service officers and men who have been examined for their invaliding disability of nephritis; they nevertheless represent a very fair proportion of the total number of cases under observation in this area (the S.W. of England), and whilst the general findings will, I consider, give a just insight into the present condition of the average case, the mortality figure reads low in comparison with that of 2.5 per cent. obtained from all known cases in the district.

To sum up, acute nephritis is a rare disease in civil life; we know very little of its aetiology, save that it has been associated with a variety of infections, and that frequently there has been, in addition, the history of exposure. During the war it was at one time sought to prove that one particular micro-organism was responsible for the epidemic nature of the disease as occurring at that period, and that clinically the affection was something apart from the acute nephritis we saw so very occasionally at home. There, I think, lies the fallacy; we never saw sufficient acute nephritis prior to the war to allow us to appreciate the wide range in severity of the cases. We have learnt nephritis from the war. The mild or moderately severe type of case at onset appears to have been common, but we can find many examples of a severer form—some of them I have quoted in this paper—in all ways comparable to cases seen in civil practice. I know of an athletic young woman, who 12 years ago had an extremely severe attack of acute nephritis, and for weeks appeared to be drifting into a hopeless condition of chronic tubal nephritis, with general oedema; to-day she cannot be said to be absolutely sound, but she can hold her own in competitions requiring a considerable output of physical energy. Cases occurring in civil life in the same way as those under contemplation show that a hasty prognosis, based either on the mild or severe nature of the initial symptoms, will frequently prove erroneous in the light of the subsequent history.

The course of the severer cases seems to be comparable—why not the mild also? Is it not possible that we never see some of the mildest cases in home practice?—just as abroad so many were diagnosed quite accidentally. Again, does all the acute nephritis seen at home account for the apparently commoner case of chronic tubal nephritis?

Causation.

As regards causation we find no solid reason for divergence in the two instances. Overseas we were constantly faced with varied infections—P.U.O., trench fever, tonsillitis, influenza, acute rheumatism, the exanthemata, &c., and exposure provides a well-laid ground for the sport of secondary infections. The part played by exposure must be acknowledged; officers are undoubtedly affected in numbers considerably under their strength in proportion to men; native troops with their loin protection were less vulnerable than Europeans even when fighting in the climate of the latter; Highland troops provided fewer cases, and perhaps because of the kilt fitting snug to the hip.

A study of these figures shows that the trained soldier also suffered far less than the man of the new army. The trained soldier was accustomed to sleeping out in all weathers, and to get the last calorie out of his kit; he was educated into attaching more value to depth underneath than to weight above. The temporary soldier, on the other hand, was new from sleeping on a heavy mattress, and no doubt frequently with closed windows; he felt the cold and crammed every available rag on the top of himself, ignoring his back and inviting chills. The untrained man of over 30 proved especially inelastic to radical changes in his mode of life.

The effects as evidenced to-day cannot be lightly set aside either, as they influence—and are likely increasingly to influence—the comfort and wage-earning capacity of the individual concerned; or as they are considered in the light of the State provision which must be made in fair compensation for the same. In warfare we cannot expect to dispose altogether of the problem of exposure. Camp discipline and some general form of military training, if made possible for the youth of the nation, would at any rate render them more prepared for eventualities; any experiments would seem worthy of consideration if undertaken to counteract exposure, which, in spite of all that we have learnt from pathology and bacteriology, still remains a powerful factor in the causation of disease.

I have to thank the Director-General, Medical Services, Ministry of Pensions, for permission to publish these notes.

REFLEX DULLNESS IN OLD CHEST WOUNDS.

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C. Riviere¹ has described in cases of phthisis bands of impaired resonance to gentle percussion across the lower scapular region on both sides of the back, about the level of the fifth to seventh dorsal spines, which he terms "reflex bands of dullness." He states that in a healthy person they are absent, but can be made to appear for a time by forcible percussion of the front of the chest; that they are present in otherwise healthy subjects in whom there is marked *nasal obstruction*; and that, in the absence of nasal obstruction, the persistent presence of these bands of dullness "denotes an irritation (? always inflammation) of the lung parenchyma of some causation not necessarily tuberculous" and "will help to decide the presence or absence of a hidden focus in a case suspected of early tubercle, and they are useful in the exclusion of all catarrhal conditions not involving the lung parenchyma."

Some observers are frankly sceptical not only as to the interpretation, but even as to the existence of these bands of dullness. Those who invariably practise heavy percussion are not likely to find them. Most physicians who examine many chests will probably agree that there are areas of impaired resonance in early cases of phthisis which cannot well be due to anatomical change in the lung substance; they are too extensive, or are found on both sides of the chest when the only other evidence of disease is unilateral. Since reading Riviere's paper I have made it a practice to search for "band dullness" as a first step in the routine examination of all lung cases. It should be the first step, because the necessary manoeuvres in the later examination of the patient may in themselves cause the sign to appear. It is also necessary to observe whether the patient has nasal obstruction. In practice it is sometimes difficult to be sure whether the band dullness is present. The cases fall into three groups: (1) Where the sign is certainly present; (2) where it is certainly absent; and (3) the doubtful

cases. Greater experience, or a nicer discrimination in touch and hearing, would very probably enable one to eliminate the doubtful group.

Symptoms Resembling those of Phthisis.

In examining patients for this sign I have as far as possible avoided all bias as to the likelihood of its being found, or as to its significance if found. During the past three years I have examined in this way upwards of 60 men who suffered gunshot wounds of the chest during the war. They were referred to me by the Pensions Medical Board, in most cases because some of their symptoms or signs were suggestive of pulmonary tuberculosis. Parisot² and others have pointed out how closely the symptoms may resemble those of phthisis. Dyspnoea on exertion, cough, hæmoptysis, and pains in the chest are very frequently complained of; the toxic symptoms of active tubercle, such as tachycardia, sweats, anorexia, and headaches are, however, usually lacking. The signs and X ray shadows are often very puzzling, and in some cases only repeated negative sputum examinations will serve to exclude tubercle.

Sixty-five cases of old chest wounds have been examined. They may be divided into four groups: 1. Non-penetrating, where there was no evidence of injury to the lung at the time of wounding, 3 cases; these have no further interest. 2. Perforating—i.e., "through-and-through" wounds—15 cases. 3. Penetrating wounds, where the foreign body had been removed by operation either soon after the wound or later, 19 cases. In most cases the foreign body had been removed from the pleura or the chest wall, only in a few instances from the lung itself. 4. Penetrating, with foreign body retained, 28 cases.

The findings as to "band dullness" in the last three groups are shown in Table I.

TABLE I.

Group.	—	Cases.	Band dullness—	
			Present.	Absent.
2	Perforating	15	3	12
3	Penetrating—F.B. removed	19	3	16
4	Penetrating—F.B. retained	28	24	4

Two of the three cases in Group 2 with band dullness present had some degree of nasal obstruction.

With few exceptions the cases in Group 4 had been X rayed, but in most of them there was no exact localisation of the foreign body. In the four cases where band dullness was absent, and in three where it was present, the retained projectiles were probably outside the lung.

Two cases in Group 4 were definitely shown to be tuberculous by the finding of tubercle bacilli in the sputum. The remainder were considered non-tuberculous. This small proportion (3·2 per cent.) is in agreement with the general experience that chest wounds are comparatively seldom followed by phthisis.³ In view of the interest of the subject a brief note may be given of these two cases.

CASE 1.—Private, wounded in May, 1915, in second right interspace, piece of shell retained in upper lobe of right lung. In October, 1919, complained of sharp pain in right breast and shoulder, dry cough, and dyspnoea on slight exertion, and said that these symptoms had been present more or less since the wound. Pronounced dullness, feeble breath sounds, and impaired mobility of right upper lobe. Sputum: T.B. present. Was well and working 12 months later.

CASE 2.—Rifleman, wounded in 1915 in right lung, piece of metal retained in right upper lobe. He became fit again for service and was twice subsequently wounded in the limbs, and discharged from the army in December, 1918. In April, 1920, he complained of dry cough, pricking pain in right breast, and shortness of breath on exertion. Early signs of phthisis were found at right apex, and T.B. appeared in the sputum after the administration of iodide. The disease ran a progressive course, and the patient died in May, 1921.

It will be noticed that in both cases there is a long interval between the date of the wound and the discovery of active tubercle, so that the causal relation-

¹ C. Riviere: THE LANCET, 1915, ii., 387.

² J. Parisot: Rev. méd. de l'Est., June, 1921.

³ J. B. McDougall: Tubercle, 1920, i., 353.

ship must remain in doubt, but it is impossible to be sure how long symptoms of phthisis had been developing, and it is at least significant that in both cases the disease first appeared in that pulmonary lobe which contained the piece of shell.

Turning to the non-tuberculous cases, it appears from the table above that the presence or absence of the band dullness sign is closely related to the presence or absence of a retained foreign body in the chest. In wound cases, therefore, this sign cannot be taken as diagnostic of active tubercle. Accepting Riviere's view that the sign indicates an irritation or inflammation of the lung parenchyma, it appears that a bullet or shell fragment is not always retained by the lung with such complete indifference as has been thought. The cases described by Moynihan¹ point to the same conclusion. It appears also, since band dullness was found in some instances so long as seven years after the wound, that the symptoms due to a retained foreign body may last a long time, and are by no means entirely subjective. In two cases there was clear evidence from successive radiograms that the foreign body was changing its position in the lung. One of these patients had considerable hæmoptyses about the times of shift in position.

Symptoms of Old Chest Wounds.

The fact that a man is being examined with a view to reassessment of pension may very naturally enhance to some extent his description of his symptoms. Table II. shows the chief symptoms in the three groups.

TABLE II.

Group.	—	Cases.	Number complaining of—			
			Pain.	Dyspnœa.	Cough.	Hæmo- ptysis.
2	Perforating—	15	10	14	8	2
3	Penetrating—					
	F.B. removed	19	11	12	8	6
4	Penetrating—					
	F.B. retained	28	24	21	14	6
	Totals ..	62	45	47	30	14

The chief points to be noticed are the frequent complaint of dyspnœa and the comparative rarity of hæmoptysis in all the groups; and the relative frequency of pain, which might be expected, among the cases with a retained foreign body. These points are brought out more clearly in Table III., which shows the main symptom volunteered by the patient.

TABLE III.

Group.	—	Cases.	Number giving as main symptom—			
			Pain.	Dyspnœa.	Cough.	Hæmo- ptysis.
2	Perforating—	15	4	10	1	0
3	Penetrating—					
	F.B. removed	19	6	9	1	3
4	Penetrating—					
	F.B. retained	28	17	6	4	1

It will be seen that shortness of breath was a more prominent symptom among the cases free from retained foreign bodies, and that pain was much more conspicuous among those with a retained projectile.

The lung parenchyma is not sensitive to pain, so that this symptom is thought to be due to drag and pull on localised adhesions, where "a part only of the lung is firmly anchored to the pleura, the rest being free to move. A general diffuse adhesion between the pleural surfaces is not attended with pain, and, indeed, may be a means of preventing it" (Grey Turner, quoted by Moynihan). A missile which has passed through the chest wall in one place, and then lodged in the lung, is more likely to cause such a localised adhesion; but a missile which passes right through would be likely to cause at the wound of exit another adhesion tending to prevent this drag on one part of the pleura.

¹ Sir B. Moynihan: British Journal of Surgery, 1920, vii., 444.

Conclusions.

1. Wounds of the lung are only rarely followed by tuberculosis; two instances out of 65 cases were found in this series.

2. The physical sign of "reflex band dullness" is frequently found in old lung wound cases, when there is a retained foreign body.

3. Both this sign and the symptoms experienced by these patients suggest that a piece of metal retained in the lung keeps up a certain amount of chronic irritation.

A NOTE ON THE INTRAVENOUS INJECTION OF SERUM.

By POUL IVERSEN, M.D.

(From Blegdams Hospital, Copenhagen,
Prof. V. BIE, M.D.)

THE object of the serum therapy of diphtheria is partly to neutralise the toxin by degrees as it is absorbed and partly to neutralise the toxin already fixed by the tissues. The first requires that a certain presumably small concentration of antitoxin shall be present in the blood at the earliest possible moment; the second probably requires as high a concentration as possible. The object of treatment ought, therefore, to be to furnish the patient as quickly as possible with a high antitoxin concentration in the blood, and this is most easily attained by injecting the antitoxin serum intravenously. Objections can hardly be made theoretically against this method of procedure, as it has been shown that antitoxin which gets into the blood by this method disappears just as slowly as when it is injected subcutaneously or intramuscularly (Th. Madsen), but two practical points might deter doctors from employing the intravenous method as the principal treatment. Is the technique too difficult and the intravenous injection of serum dangerous? The technique should not be any hindrance, as it only consists in drawing up serum into a syringe under aseptic conditions and injecting it slowly into an arm vein. Experience alone can indicate any dangers arising from this method. I will therefore give an account of how the patients who were treated in Blegdams Hospital by intravenous injection in 1919, 1920, 1921, and the first half of 1922 have stood it, and how patients who had previously had serum tolerated reinjection, especially when it was given intravenously.

Description of Sera.

The serum is supplied by the Danish State Serum Institute. It has mostly contained 0.5 per cent. phenol, 400 units per c.cm. During the last year 1.0 per cent. chinisol has been added in place of phenol. At one time the serum was concentrated by fractional precipitation with ammonium sulphate. Quite recently the Serum Institute has succeeded in raising the antitoxin in the horse's serum as high as 800 units per c.cm. without precipitation or concentration in any other way. This strong native serum and chinisol serum represent a considerable advance. As regards cases of serum disease we have not observed any difference between these sera.

First Injections.

Altogether 406 patients, who had not previously had serum, received intravenous injections. Of these 27—that is to say 7 per cent.—presented the first couple of hours after the injection an affection only rarely seen after intramuscular injections, which usually takes the form of a rigor of 10–30 minutes' duration. The pulse is small and the patient blanched. More rarely the rigor is absent and the attack resembles a mild collapse. With the exception of a single case, where the patient was confused and sluggish for a couple of hours, the condition is quite transitory and easily counteracted by subcutaneous injection of camphorated oil. A serum rash appeared in 54 per cent. of the patients between the fourth and fourteenth day, the average day being the ninth.

Classification of Cases.

The cases are classified according to the different years.

In 1919 68 injections were given. After nine of the injections (13 per cent.) the above-mentioned attacks occurred, rigors six times and collapse three times. In all nine cases 20 c.cm., containing 8000 units, were injected. An 8-year old girl received 45 c.cm. serum and a 10-year old girl 30 c.cm. serum without disagreeable after-effects.

In 1920 119 injections were given. After one of the injections only was there a slight attack of collapse, with no rigors. In this case 24,000 units were given intramuscularly on admission. On the next day 44,000 units were given intramuscularly + 4000 units (10 c.cm.) intravenously. Half an hour after the intravenous injection there was a tendency to collapse.

In 1921 174 injections were given. After ten of the injections (6 per cent.) rigors occurred eight times and collapse twice: 10-40 c.cm. serum were given, containing 8000-32,000 units.

In 1922 (first half year) 45 injections were given. After seven of the injections (15 per cent.) rigors occurred five times, collapse once, associated with a serum rash immediately after the injection, and once an attack of giddiness: 10-20 c.cm. serum were given containing 8000-16,000 units.

In elaborating the material I have been unable to help noticing that the attacks are independent of the size of the serum dose, and that their number varies greatly from year to year. These facts indicate both individual idiosyncrasies and differences in the serum used.

Reinjections.

I will now proceed to discuss reinjections, concerning which we have at the beginning been chary, on account of the anaphylactic shock manifested in animal experiments. Reinjection was carried out from January, 1916, to July, 1922, in 99 cases, from a few months to about 15 years after the first injection. In some cases we tried to desensitise by giving 1000 units subcutaneously 5 to 24 hours before the therapeutic injection, in others (a very few) by injecting 1 to 2 c.cm. serum intravenously in the course of ten minutes. In both methods the interaction between certain protein substances, which takes place after the injection, should occur so slowly that shock is avoided. In the majority of cases, however, we have either injected the usual serum dose intravenously, but very slowly to begin with (10-20 c.cm. in the course of 20 minutes) and at the same time given an intramuscular injection, or we have injected the whole amount intramuscularly.

In 18 out of the 99 cases desensitisation was attempted by subcutaneous injection, but the diphtheria disappeared so quickly in 9 of them that the subsequent injection was omitted. In none of these 9 cases was any serum disease observed beyond some reaction at the point of inoculation. In the other 9 cases an intramuscular or a single intravenous injection was given later, usually on the day after the subcutaneous injection. In 6 of these 9 cases nothing happened. In 1 case a slight rigor occurred four hours after the subcutaneous injection, but nothing occurred the day after, when 12,000 units were injected intramuscularly; in 1 case there was a rigor two hours after an intramuscular injection of 40,000 units. This patient developed an enormous serum rash on the fifth to sixth day, and also a small soft pulse. The patient who received an intravenous injection had severe vomiting after the injection (28,000 units).

In 18 cases an intravenous and an intramuscular injection were given without the desensitisation procedure. The intravenous injection was given slowly in the course of 10-20 minutes. In 13 cases nothing happened: in 2 cases while the intravenous injection was taking place,* and in 2 cases, 1-1½ hours after the latter, the patients had a rigor of the same kind and severity as those observed in patients who had not previously received serum. In the last case (diphtheria gravis) 10 c.cm. of serum was given intravenously without unpleasant results, but ten minutes after 100,000 units were injected intramuscularly, in immediate response

to intravenous injection, the patient collapsed. The pulse was somewhat improved by a stimulant, but the patient died four hours later. This patient, who was admitted on the fourth day of the disease, was moribund when taken into hospital; death was, therefore, not due to the serum injection. In 63 cases 10-80 c.cm. serum were injected intramuscularly, also without preliminary desensitisation. In 57 cases nothing happened; once there was a little collapse, and three times there was an urticarial serum rash shortly after injection. In 2 cases in which a very intense serum rash appeared on the fourth and fifth days respectively, collapse occurred simultaneously with a very small or imperceptible pulse, which, however, was much improved by a subcutaneous injection of camphorated oil. The first of these cases is reported in detail later on.

These two cases, as well as the last one mentioned in the group which had first received a subcutaneous serum injection, undoubtedly exhibit the most unpleasant symptoms for patient and doctor. The patient is very distressed by the itching rash, oedema of the face, particularly the lips, and pains in the joints. The doctor is perturbed by the bad pulse which may occur periodically. In patients who have not previously received serum a similar morbid picture may occur, but scarcely with such severity as in these three cases, the clinical notes of one of which will be given.

CASE 145.—Female, aged 11 (1918). Membrane covers the tonsils. The patient was admitted on Jan. 9th, and received 20,000 units of antitoxin intramuscularly. On the 10th she slept well, membrane decreasing. On the 11th remaining membrane small. On the 12th small spot on uvula. On the 13th, 5 A.M., patient became blanched, with cyanosis of the lips, moist with sweating, cold, relaxed, with a small quick pulse, and nausea. This attack lasted about two minutes. Simultaneously an urticarial serum rash broke out on the cheeks, which itched. There was considerable oedematous swelling of the lips (negro lips). In the space of a quarter of an hour the eruption had spread over the whole face with the exception of the lips and chin, and also appeared in small spots on the arms and legs. Nothing at the site of injection. In the course of a couple of hours the eruption also increased in extent on the extremities, but remained unchanged on the face. After six hours it had almost disappeared. At this time (11 o'clock) she felt well and had a good appetite. At 7 o'clock and 8 o'clock there had been attacks of nausea, but otherwise no symptoms of collapse. On the 14th the patient was feeling well; pulse 68, regular, strong; condition of heart normal; edge of liver at costal margin. On the 16th, 17th, and 20th nausea and serum rash were again noted, with no serious symptoms of collapse.

This case was unpleasant enough, but the dangerous condition of collapse was quickly over. In other cases it recurs and they have a more protracted course. The injection of camphor seems to be a good remedy in combating the collapse. From the cases of reinjection referred to it appears that there is no advantage in desensitising by giving 1000 units subcutaneously, and as this directly hinders the necessity of immediately providing the blood with an adequate amount of antitoxin, we ought hardly to employ this desensitising method in cases which we know for certain will require a large injection later.

That the three unpleasant attacks of serum disease cited all occurred in patient who had received an intramuscular injection, is hardly more than chance; the intramuscular injections were more than four times as numerous as the intravenous injections. If we except the case of diphtheria gravis which led to death some hours after admission, there were four rigors in 17 intravenous injections—that is, about 24 per cent. of the cases. None of the cases were dangerous.

Leaving aside the 9 cases where only 1000 units were given subcutaneously, 74 per cent. got a serum rash on the first to tenth day, usually on the sixth day. Complete information concerning the attacks of serum disease in these patients after the first serum injection cannot be given.

A special little group of 21 patients, with a single exception (a week), have again received serum four to eight weeks after the first injection, usually

* The injection was stopped as soon as the rigor occurred.

40-50 c.cm. (16,000-20,000 units) intramuscularly two days in succession, in order, if possible, to have a favourable effect on the paralysis. From the therapeutic standpoint the result was negative. It is, however, of interest to see how these patients react to a serum injection at a time when we should expect them to be particularly sensitive. In four patients desensitisation was carried out by means of 1000-2000 units subcutaneously five to six hours before the real serum injection. In one of these, and in three of the other 17 patients, there was some vomiting. Apart from some reaction at the point of injection 14—that is, 66 per cent. of all the 21 cases—developed a serum rash on the first to fifth day, *usually on the second day*. In no case were dangerous symptoms seen.

Summary.

The intravenous injection of diphtheria antitoxin is not a dangerous method. It should be the method of choice, even in patients who have previously received serum. It is only necessary to give the injection slowly, and temporarily or definitely discontinue it on the appearance of any reaction on the patient's side. The material relating to the intravenous re-injection, however, comprises only 19 cases. The most unfavourable attacks after re-injection occur at the time when the serum rash appears.

THE TOXÆMIC ASPECT OF OCULAR DISEASE.

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A TOXIC condition of the blood affects in varying degree the nutrition of the eye. Eight years ago, in a paper contributed to THE LANCET,¹ I dealt with this subject under the heading of "Some Aspects of the Ciliary Body in Health and Disease." In effect the object of the paper was to draw attention to the numerous cases of hypothyroidism met with in ophthalmic practice.

Diagnostic Signs.

Thyroid insufficiency may be translated into failure of the thyroid to protect the body against some source of toxæmia. In such cases the gland becomes unequal to the demand made upon its functional activity, and its failure is manifested by numerous signs. It has been the habit in ophthalmic practice to overlook these signs; to treat the patients on general, because orthodox, principles; to ignore the hypothyroid condition and the significance of its presence; to disregard the obvious fact that behind the thyroid insufficiency there must be a cause into which inquiry should be made. It has been the custom, when a toxæmic condition is supposed to account for an irido-cyclitis, to inquire only into some recognised focus of septic infection, as, for example, the mouth. The possibility that the eye can exhibit infective changes arising from another source of toxæmia, in the course of which marked hypothyroidism is manifest, has received but little attention. The fact, however, is that the ciliary body—the "blood" organ of the eye—is peculiarly responsive to the effects of toxæmic foci. A notable example of this is the chronic irido-cyclitis known under the name of K.P. This is a disease often of prolonged duration, fluctuating always between improvement and relapse, and proverbially showing a disposition to resist the ordinary methods of orthodox treatment resorted to for its relief. Its notorious intractability to treatment is the measure of the failure to deal with its toxæmic source, the existence of which is proved by the signs of thyroid insufficiency

present, and the favourable influence upon the course of the disease which thyroid treatment ensures. Closely allied to the symptoms characterising K.P. are those accompanying interstitial keratitis in children. Such children are regarded as the subjects of congenital syphilis.

But how often does it happen that we are unable to find any evidence elsewhere confirmatory of an active syphilitic taint. Even if a syphilitic origin of the disease be admitted, parenchymatous keratitis cannot be held to be a manifestation of a syphilitic process in activity. Were this to be so, on the contrary, anti-syphilitic treatment, which is so commonly resorted to, could scarcely fail to check the course of the disease. General experience, however, has determined that this method of treatment has no influence in controlling the active inflammation present. Moreover, apart from the ocular signs, the small patients are generally (invariably it may be said) the dejected objects of advanced malnutrition and marked anaemia. Again, they exhibit many signs characteristic of hypothyroidism. Finally, the keratitis is secondary to an acute cyclitis, such as might be expected to follow the physical conditions present. That parenchymatous keratitis in children is mainly a toxæmic manifestation is supported by the treatment which I came to adopt for its relief. The children were kept in bed, fed up on a generous diet, and 3 gr. of thyroid gland were given twice daily. As the physical condition improved so the intense photophobia and the keratitis subsided. Atropine, with fomentations, was the only local treatment necessary. Thus the toxæmia was held in check by the thyroid administration, and gradually normal nutrition came to be re-established.

"Sympathetic Ophthalmia."

There is another disease of the uveal tract, especially destructive in its effects, suggestive also of being associated with a general toxæmia. The aetiology of the irido-plastic cyclitis, known under the popular unscientific name of "sympathetic ophthalmia," still remains a myth. Theories abound as to its origin; nevertheless the problem is no nearer solution than was the case in ancient times. Our forefathers, greatly puzzled by the destructive incidence of the disease, willingly enough no doubt, accepted the hypothesis that "sympathy" could be a cause of inflammation. Custom has led to this interpretation being retained. Ophthalmic surgery still continues to be adorned by this particular terminology, which is conceded to be a solecism, but which at the same time is a reflection upon the science of our age. The possibility that the disease may be of toxæmic origin has hitherto escaped observation. Although every attempt has so far failed to isolate an organism as the causal agent, it may so be that there is one of a saprophytic type which only becomes virulent when exposed to a toxic environment. The colon bacillus is normally a saprophytic organism; in the intestines it exercises an inhibitory influence upon the putrefactive bacteria of the faeces. When, however, intestinal stasis is present, the putrefactive bacteria increase, the colon bacillus becomes pathogenic, and completes the vicious circle of the pervading toxæmia. The inference is reasonable that were an organism such as we have supposed in an injured eye to become pathogenic owing to this toxæmia its special toxin might be productive of the acute irido-plastic cyclitis in the wounded organ, to be followed subsequently, in the absence of due prophylactic measures, by the involvement of the sound one. The vulnerability of the ciliary body to toxic infection is sufficient to imperil the recovery of an eye, either after injury or following an intra-ocular operation. Plastic irido-cyclitis has developed even after the strictest antiseptic precautions practised in the course of an operation. The peril of the disease is by these precautions not averted. Natural repair of the tissues cannot be expected with blood infected with toxic products.

¹ THE LANCET, 1915, i., 1129.

Intestinal Disinfection.

All this, of course, may be regarded as pure hypothesis. Nevertheless it bears closely upon the theme which has been of late impressed upon me, and which it is the main object of this paper to emphasise—namely, the importance of the relationship of intestinal toxæmia to ocular disease. What, again, are the facts? Hypothyroidism associated with disease changes is proof of a pervading toxæmia. The toxæmia is subject to control by thyroid therapy, more or less. But in the case of the toxæmia arising from intestinal stasis the most scientific method of treatment must obviously be the sterilisation of the putrefactive organisms in the intestines.

By the introduction of the new benzene derivative dimethylmethoxyphenol, the putrefactive organisms are destroyed and the *B. coli*, owing to their "greater powers of resistance,"² under the changed environment are enabled to cast off their pathogenic virulence and resume their normal character. The significance of this addition to our therapeutic resources suggests the beginning of a new era in the treatment of disease; the fact that the poison trap of the intestines can now be brought under control may prove to be the solution of more than one hitherto undetermined pathological eye problem.

And not in man only will this advance prove to be effective. Animals also are subject to intestinal toxæmia. Calves, for example, are the subject of a disease known as "white scour." This apparently corresponds with the summer diarrhoea of children, and is attended with similar fatality. Sterilisation of the intestines of the affected calves has been found to arrest the disease, and recovery has followed. Some fascination undeniably belongs to the contemplation of the numerous problems of disease regarded from the aspect of intestinal toxæmia and its new treatment, and the study of this subject gives promise of yielding valuable clinical results.

A NOTE ON

GLUTEAL ANEURYSM AND RUPTURE
TREATED BY ANTILLUS'S
OPERATION.

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THE following case is of sufficient interest to merit record.

A soldier, aged 30, was wounded in the left buttock by German shrapnel in 1918. Next day an embedded missile was removed and the wound healed well, leaving no disability. I saw him in the out-patient department, Bristol Royal Infirmary, on Dec. 5th, 1921. On leaving his office two days before, and taking a few steps, he felt a tearing sensation in his left buttock; his leg gave way under him, "the use going out of it," and he fell, but managed to rise and limp home.

Condition on Examination.—He looked pale and ill, though his mind was alert. Temperature 100° F. Pulse 100. When standing he supported himself by means of a stick. He had to lie on his side on the couch owing to the pain in the buttock. On turning him into the fully prone position a low-domed swelling was found at the painful site. The skin appeared healthy, save for a healed superficial oval scar 1½ inches long situated about the middle of the buttock. The swelling was very tender, smooth, and compressible, as far as could be tested. It had an expansile impulse corresponding to the radial beat and seemed to underlie the gluteal muscles. The pulsation, most marked centrally, extended from the iliac brim downwards over an area about 8 inches in diameter. A systolic bruit was audible over it and more faintly in the left iliac fossa. The pulse in the posterior tibial arteries was equal. The abdomen and rectum felt healthy. There was little loss of movement in the limb, and no evidence of nerve pressure. X rays showed no bony lesion or shrapnel. Syphilis was denied.

² THE LANCET, 1921, i., 758.

Subsequent Course.—Leaking traumatic aneurysm was diagnosed, and he was admitted as an in-patient under the care of Mr. T. Carwardine. The same night pain in his buttock woke him. This was still present on Dec. 7th, but no evidence of paralysis of the sciatic nerve appeared. The pain and other signs in the swelling did not subside, and immediate operation was planned.

First Operation.—On Dec. 7th, transperitoneal ligation of left internal iliac artery. A median laparotomy was performed, the Trendelenburg position being adopted. The left internal iliac artery was easily located and a marked thrill felt in it which was absent on the right side. The gluteal swelling became smaller, losing its pulsation as the artery was ligated. On the 16th the swelling enlarged and became pulsatile again. This was thought to be due either to premature absorption of catgut ligature, or the opening up of the circulation across the pelvis from the branches of the opposite internal iliac artery.

Second Operation.—On the 12th, transperitoneal ligation of the gluteal and obturator arteries. The former incision was reopened, and the ligature on the internal iliac artery was found safely in situ. There was, however, faint pulsation in the gluteal artery, so this vessel and the obturator were ligated. All pulsation left the buttock swelling, but in the ward three hours later it was again felt and did not diminish. Ligation having proved unsuccessful, Antyllus's operation was planned.

Third Operation.—On the 30th, whilst an assistant made direct digital pressure on the abdominal aorta as required, through an opening in the upper end of the former incision a direct attack was made upon the aneurysm. A cutaneous flap was turned down over the swelling in the left buttock, and a 4-inch muscle-splitting opening made through the gluteus maximus. A bluish feebly-pulsating swelling was displayed, about the size of a hen's egg, and was partly freed from the surrounding structures. Whilst the assistant compressed the abdominal aorta the sac was incised and a rush of blood took place. Hæmorrhage was controlled by a large swab on the aneurysmal bed, and as this swab was gradually unrolled the mouths of afferent vessels were seized with forceps. The neck of the sac, which was in contact with the upper margin of the great sciatic notch, was tied off with No. 6 thread. Gauze packing and a tube were inserted as a temporary measure, and the wound was closed.

Recovery was rapid but not complete. The patient returned to work on March 1st, 1922, but suffered from pain, in the buttock and limbs. He died suddenly on July 23rd from symptoms suggesting pulmonary embolism.

Remarks.

In this case a diagnosis of sarcoma or abscess was partly excluded by the history of sudden onset. The patient successfully underwent three major operations within 23 days. The failures of the first (Hunterian) operation and the second, which was equivalent to Anel's operation, are instructive, as in both instances pulsation was temporarily arrested. A similar experience is recorded by Gillette,¹ where pulsation recurred in a gluteal aneurysm seven months after apparently successful ligation of the internal iliac artery. My conclusion is that aneurysm of the gluteal artery should be treated by:—

1. Preliminary ligation of the internal iliac. This is in itself harmless and will control hæmorrhage from sac.

2. The aneurysmal sac is dealt with locally according to the condition found in the buttock: (a) if the wall of the sac is ill-defined, as in this case of ruptured aneurysm, intra-saccular ligation is best; (b) if a well-formed sac is present, then obliterative endo-aneurysmorrhaphy is the ideal method.

Bristol.

¹ Annals of Surgery, xlviii., 1908.

DONATIONS AND BEQUESTS.—The Right Hon. T. R. Ferens, High Steward of Hull, has given £2000 to the Hull Royal Infirmary to enable better equipment to be acquired for dealing with cancer.—The governors of the Oldham Royal Infirmary have received £2000 from Mrs. Elizabeth Shorrocks, Hollinwood, to endow two beds, one in memory of her husband and the other in memory of her daughter.—Mr. Munro Page, of Huddersfield, left £150 to the Huddersfield Royal Infirmary and £100 to the Huddersfield Deaf and Dumb Society.—Mr. Richard Ward, of Kirkham, Lancashire, left £1000 to the Preston Royal Infirmary and £500 to St. Dunstan's Hostel for the Blind.

Medical Societies.

CHELSEA CLINICAL SOCIETY.

THE annual debate of this Society was held in the Club Room of St. George's Hospital Medical School on March 20th. In the absence of the President, Dr. T. B. HYSLOP was in the chair.

Sir CHARLTON BRISCOE introduced the debate on VISCEROPTOSIS.

He said that recently he had been interested in the study of the mechanics of respiration, and particularly of the diaphragm which was generally accused of being the prime factor in the production of visceroptosis. The act of respiration was carried on by two distinct mechanisms, thoracic movements and diaphragmatic movements. Generally both were concerned in respiration, but in the majority of individuals one type of respiration predominated—either the thoracic or the diaphragmatic. The thoracic breather, the rarer type, was apt to develop the type of chest known as emphysematous with a wide subcostal angle, although this was not necessarily associated with emphysema. In these persons the abdominal muscles were quite lax. In abdominal breathing the descent of the diaphragm was associated with contraction of the external and internal oblique and the transversalis. These muscles were most strongly developed in the flanks and in the epigastrium, above the level of the tenth ribs. It was the part below the level of the tenth ribs and internal to the anterior iliac spine, controlled by the weaker parts of these muscles which yielded. The rectus was not a muscle of respiration and played little part. This was the type in which visceroptosis might be expected to occur; and the commonly seen visceroptotic subject was a female with a small lower thorax and acute subcostal angle in whom there had been a loss of fat, while pregnancy or prolonged illness produced yielding of the lower abdomen. The speaker believed that the visceroptotic habit was produced early in life; while all new-born infants had very much the same type of chest, the two types began to be differentiated about three to five years of age. Curvature of the back from bending over unsuitable desks at school, fatigue and over-exercise, myopia, nasal obstruction from adenoids and constant colds, and increased intra-abdominal tension were all aetiological factors in producing abdominal respiration and the visceroptotic habit. Lack of proper exercise to develop the upper chest also favoured abdominal respiration. Since the habit was found early in life, prevention should begin at an early age by eliminating the factors the speaker had already enumerated.

Discussion.

Mr. IVOR BACK was inclined to question whether visceroptosis existed as a clinical or pathological entity. Impressions of human anatomy and particularly of the position of the abdominal viscera had been gathered, in the past, from the formalin-hardened dissecting-room specimen. We now knew that in the erect attitude the abdominal viscera did not occupy any such position as that seen in the dissecting-room—the opaque meal and X rays frequently demonstrated a cæcum in the pelvis and a transverse colon resting on the pubes, positions which he was now inclined to regard as quite normal for many individuals. Ptosis of the kidney was recognisable by palpation without X rays and at one time was blamed for many vague abdominal symptoms, and various types of nephropexy were extensively practised on this account. This operation was now rightly discredited unless the symptoms, such as Dietl's crisis, definitely incriminated the ptosed kidney. Indeed, in recording the results of this operation in 448 cases the surgeon himself could only claim 55 per cent. of cures one year after (a very poor result for a modern operation), while 26 per cent.

were "no better or worse." The visceroptotic patient was generally a thin woman and a potential neurasthenic, often with domestic worries. To tell this woman that the X ray examination revealed a dropped intestine was to convert a potential into an actual neurasthenic. The usual sequence was that after a trial of an abdominal belt the patient went to a surgeon who advised and performed various pexy operations with results that were often brilliant for six months or a year, in fact, until the suggestion that operation would be curative had passed off, after which the patient returned to her former state. He thought there must be something wrong with an operation, the results of which were explained by its advocates in two entirely different ways, by some on a mechanical basis and by others as relieving the drag on the mesenteric nerves. He pleaded for the same sanity as regards colopexies as now held in the case of nephropexy. In a few cases he thought patients with chronic constipation and a large blue, boggy cæcum constantly in the pelvis derived some benefit from fixing the cæcum, but that organ must not be deprived of its natural mobility.

Dr. ROBERT HUTCHISON believed that visceroptosis was a definite clinical entity of great interest, but very difficult to diagnose both from its almost constant association with neurasthenia and from the fact that it was a great imitator of acute organic abdominal lesions. He could not agree entirely with Sir Charlton Briscoe as to its aetiology, since diaphragmatic breathing was less common in women who were usually the subjects of the disease. He attached more importance to the size of the pelvis in women and the derangements of its floor in consequence of pregnancy, and to loss of the supporting fat within the abdomen, but was inclined to agree that the muscular hypotonus which led to visceroptosis was the result of an inborn diathesis. Visceroptosis might be present without any symptoms; but the ptosed viscera acted at a disadvantage, and symptoms were produced if there was atony of the visceral muscle, or of the abdominal muscle leading to decreased intra-abdominal tension. He thought that the dependent position of the viscera led to the pooling of blood in the abdomen and consequent venous congestion. The diagnosis of visceroptosis as the cause of symptoms often presented the utmost difficulty. He had seen cases clinically resembling gall-stones or gastric ulcer where operation revealed no lesion other than visceroptosis, and thought that operation was demanded in these cases for diagnostic purposes, since there was no other means of finding out whether there was or was not a true acute abdominal lesion. He understood that nephropexy had been given up 15 years ago, and maintained that the utmost caution should be observed in advising surgical treatment apart from exploratory operation. Medical treatment was complicated by the mental symptoms, but something could and should be done for the various pains and draggings which, however slight their pathological basis, were very real to the patient. It was very important that medical treatment should begin early, and especially before the patient had submitted to multiple abdominal operations. The indications were to build up the abdominal wall and to repack the abdomen with fat. Many patients experienced relief from wearing a belt, not because it held up the viscera (for it did not), but on account of the increased intra-abdominal tension it produced. If the atony of the gut could be dealt with patients would be able to overcome the mechanical disadvantage of the ptosed intestine, and any method of sustaining the pelvic floor would be helpful.

Mr. MORTIMER WOOLF had always regarded visceroptosis as the result of a congenital defect. In the cases he had seen in the post-mortem room, the operating theatre, or the dissecting room the ascending colon had a mesentery while the normal mesenteries were unusually long. This was not due to mere stretching, since the mesentery was often fat and vascular, but, he thought, to failure of the normal

fusing of the right leaf of the mesentery with the posterior abdominal wall. As the result of reading Mr. Waugh's paper he had begun to investigate the frequency of visceroptosis and was surprised to find that marked ptosis of the hepatic flexure existed in many cases very often without any symptoms. He had operated on a few cases with symptoms but the results had not been satisfactory, so that he would no longer operate except for intercurrent disease. Nephropexy he only performed when the presence of such symptoms as Dietl's crisis definitely incriminated the ptosed kidney. He thought that the low position of the colon as seen radiographically might very well be due to the weight of metal in the gut, and further, that the hepatic flexure was not normally fixed either in position in the body or as regards the portion of the colon forming the actual flexure. Mr. Woolf emphasised the importance of not attributing all abdominal symptoms to visceroptosis, and of bearing in mind superadded conditions, such as bands and chronic appendicitis. He quoted a case in which right-sided abdominal pain associated with very marked visceroptosis in a young woman was found at operation to be due to gall-stones and chronic appendicitis. Finally, if a belt were worn for this condition it was essential that it should not be allowed to ride up to the upper abdomen, and for this purpose it should be provided with perineal bands.

Adjourned Discussion.

The discussion was resumed on March 27th, with Dr. J. CAMPBELL McCURE, the President, in the chair, when Dr. F. HERNAMAN-JOHNSON spoke of visceroptosis in the anatomical sense. Two types, he said, were recognised. The first commonly followed pregnancy, when the viscera were ptosed owing to the laxness of the abdominal wall: the viscera could in these cases be made to regain a normal level by treatment. A belt was required by some of these cases as a temporary expedient; other cases required electrical stimulation of the abdominal muscles. If all women received proper treatment of the lax abdominal wall after parturition there would be fewer cases of visceroptosis, prolapse, &c., for these were often preventable by early and suitable treatment. The second type, in which visceroptosis was congenital, occurred in tall thin "slab-like" women, often very energetic. When X rayed the viscera were found to be low, but the condition was not incompatible with perfect health. When symptoms occurred they often simulated appendicitis, and were due, he thought, to response of the abdominal sympathetic to stimuli which normally would have no action. In these cases again electrical stimulation of the muscle was beneficial, although it was difficult to explain why it should be so. The presence of an adhesion (the diagnosis of which by X rays might be fallacious unless great caution were observed), a cæcum in the pelvis combined with stasis for 24 hours, and the failure of medical treatment after a fair trial, all called for surgical treatment, which in these cases was attended with good results.

The PRESIDENT remarked on the frequency with which anatomical visceroptosis was present without symptoms, and while agreeing that many subjects of visceroptosis conformed to the thin type described by previous speakers, he pointed out that some were of fat and muscular habit. The work of Keith in this country and Cannon in America showed that while the general tone of the hollow viscera was controlled by the vagus the physiological sphincters at the cardia, pylorus, ileo-cæcal valve, &c., were under the control of the sympathetic. It was the lack of balance between these two opposing innervations which caused the symptoms when these were present. In a paper entitled "Neurasthenia Gastrica" (THE LANCET, 1915, ii., 695) he had pointed out that the vagoasthenic type gave way under the influence of overstimulation of the sympathetic from mental worry. Long-continued irritation, as from chronic appendicitis, or even in children from phimosis, acted similarly in causing loss of tone in the stomach and colon. The

visceroptotic whose symptoms were cured exhibited no change in the position of the viscera: what had happened was that he had regained the normal balance between vagus and sympathetic action in the viscera. It was in fact not a question of the position of the organs, but a question of the presence or absence of gastro-intestinal stasis. At Guy's Hospital they found that amongst their students the most pronounced ptosis existed in the best athlete. A hint of the possible endocrine origin of intestinal stasis was given by the discovery by Sir A. Keith¹ in the crypts of colons excised for stasis of a pigment allied to adrenalin. Further support was given to this theory of the cause of stasis by the fact that the administration of adrenalin aggravated the symptoms. Intestinal hypotonus and gastric hypochlorhydria were often associated, and the beneficial results of treatment of the latter might possibly be due to stimulation of the vagus. Another possible factor in the production of symptoms was the dilated duodenum (so often present in visceroptosis) where it was possible that toxic bodies were formed which depressed the vagus or stimulated the sympathetic.

Dr. BEAVER MENNELL said that the practice of physio-therapy was as yet empirical, for often there was no scientific basis for the treatment adopted, although in practice this was found to do good. Treatment of visceroptosis might be prophylactic or directed against the established condition. Many women came for treatment with the condition well established after pregnancy. There could be no doubt that the abdominal muscles played an important part in the control of the action of the viscera, and after pregnancy these muscles were weak and overstretched, and very often were deliberately allowed to remain so by the patient on account of the pain caused by their contraction. At St. Thomas's Hospital the electrical exercise of these muscles was now part of the routine treatment during the puerperium. In the chronic neurasthenic type of visceroptosis ordinary exercise which made further demands on the nervous system would not be tolerated, and recourse had to be made to electricity, using plain faradic stimulation, to exercise the muscles without causing nerve or heart fatigue. Massage, although never curative by itself, was helpful later. The Bergonié chair, which had been on the whole disappointing for the purpose for which it was designed—namely, for reducing weight—helped these visceroptotic patients much; whether the good effect was due to skin stimulation reflexly affecting the vagus or merely to abdominal massage, he was unable to say. For women with a low blood pressure and lax abdominal wall a belt was helpful, possibly by raising the intra-abdominal pressure and thus preventing the accumulation of blood in the splanchnic area. Since he had noticed that in many cases strain of the sacro-iliac joints was associated, possibly reflexly, with constipation, even in muscular individuals, he advocated that where a belt was fitted it should be so designed as to support those joints.

Dr. H. A. ELLIS, who had worked in this subject, partly in conjunction with the President and partly by himself, was convinced that the symptoms of visceroptosis when they occurred were due to atony of the gut. Cutaneous stimulation would cause the gut to contract, and different areas of the skin were associated in this manner with different parts of the gut. The visceroptotic was essentially an alkaline type with deficient gastric acidity. He had noticed in many of these cases the presence of an abnormal albumose in the urine, which he suggested might have an origin in the duodenum either from the absorption of albumose or from an error in fermentation. Some derangement of innervation was probably the prime cause of the condition.

Dr. D. M. BARCROFT thought that the disease was generally congenital and exhibited a tendency to appear in members of a family. In proof of this he described a family, three members of which had

¹ Discussion R.S.M.: The After-Results of Colectomy, THE LANCET, 1922, i., 636.

recently come under his care. The first sister had abdominal pain accompanied by unusually prolonged pyrexia, and X rays showed marked visceroptosis. Appendicectomy and fixation of the cæcum had relieved her. A second sister developed abdominal symptoms (pain, flatulence, &c.) while studying for a music examination, but recovered after the examination was over. A third sister, who returned hurriedly from Italy on account of the illness of the first, complained of pain in the right iliac fossa and had a dropped kidney. The mother had the scar of an operation for removal of the right kidney, which had been performed after nephropexy had failed. Two other members of the family were of similar type. He thought that the environment of these patients had a powerful effect in bringing on symptoms, and many cases would get better if the environment could be changed. The vague pain in the sacro-iliac joints referred to by some speakers as associated with the visceroptosis was difficult to treat.

Dr. J. F. HALLS DALLY said that our knowledge of the origin and treatment of visceroptosis had advanced but little since the time when Glénard first described the complex. He thought that when symptoms were present there was a condition of general hypotonia in other systems besides the abdomen, and notably in the circulatory system. The blood pressure was generally low, but occasionally it was high from associated intestinal toxæmia. Another antagonism which entered into the picture, besides that between the sympathetic and vagus, was the opposing effects of the diaphragm and abdominal muscles in respiration. He suggested that lumbosacral pain was due to actual dragging on mesenteries and that the cause of symptoms in visceroptosis was the intermittent discharge of depressor substances into the blood.

Sir CHARLTON BRISCOE replied briefly.

CARDIFF MEDICAL SOCIETY.

A CLINICAL meeting was held on March 13th, Prof. E. J. MACLEAN, the President, in the chair.

Gas, Oxygen, and Ether Apparatus.

Dr. H. GORDON GREAVES read a paper on the evolution of the methods for producing anaesthesia, in which he summarised the history of anaesthetics from the year 1776 when Priestly discovered nitrous oxide and also oxygen up till the present day. The contributions of Sir Humphry Davy in 1798, Henry Hickman in 1820, Horace Wells in 1844 were summarised, before the day of Frederic Hewitt was reached. Of Hewitt the speaker said: "To his great scientific and mechanical skill we owe many of the data which have enabled us to apply 'gas and oxygen' to everyday surgical use, as he went deeply into the methods of administration of (1) N_2O pure, (2) definite proportions of N_2O and air, (3) indefinite proportions of N_2O and air, (4) definite proportions of N_2O and O_2 , (5) varying proportions of N_2O and O_2 . In 1886 he devised his twin bags and special valves, with which he could give varying, but definite, proportions of gas and oxygen."

Through the following years, he continued, many apparatus have been evolved, but the war gave an enormous stimulus to anaesthetic and surgical procedures, and, in the speaker's opinion, the best present-day apparatus was that devised by Mr. Boyle, which he described.¹ The dangers of gas and oxygen Dr. Greaves considered few, and the great advantages as follows:—

1. Very ill and shocked patients recover quickly from its effects.
2. Feeble and septic patients do well because N_2O is non-toxic itself and does not increase the susceptibility of the body to the toxins set free from injured tissues.
3. Diabetic patients are less likely to go into a state of coma than with ether or chloroform.
4. Very long operations on not very sensitive parts can be undertaken with little risk of bad after-effects.
5. Obstetrical work is well done under gas and oxygen without risk to mother or child.

¹ THE LANCET, Nov. 3rd, 1917, and Feb. 8th, 1919.

6. Nausea and vomiting are much less likely to follow than after chloroform or ether.

7. Delayed forms of acidosis do not seem to occur.

Congenital Hydronephrosis.

Dr. IVOR J. DAVIES showed specimens from a case of small white kidney with an associated congenital hydronephrosis. The patient was an intelligent small girl of 15. The state of nutrition was poor, and a slight degree of anaemia was present. The complexion was sallow. Measles in childhood and a few attacks of tonsillitis in recent years were the only previous illnesses. There was no evidence of an antecedent nephritis. She was one of eight children, the others being healthy. The duration from the onset of symptoms to the termination was 15 months, the last three of which were spent in hospital. Severe paroxysmal headache was a feature from the onset, and was associated with occasional attacks of vomiting after meals, which became more frequent in the later stages, and during the last week the vomit contained altered blood. Puffiness under the eyes and swelling of the feet and ankles in the last few weeks were observed, otherwise there was an entire absence of cedema. There was much thickening of the peripheral arteries with a hard pulse. The systolic blood pressure only fell below 200 m.m. on a few occasions, and was generally a little higher. A slight degree of hypertrophy of the heart was evident, with alteration of the first sound at the impulse, and an accentuation of the aortic second sound at the base. Albuminuric retinitis with hæmorrhages was intense, and the star figure was a striking feature from the time when she was first seen in the out-patients' department three months before death, which, with a hard pulse and absence of cedema, made the diagnosis of small white kidney almost certain. A fair amount of pale alkaline urine was passed throughout; the specific gravity varied from 1005 to 1010. Albuminuria to the extent of 0.2 per cent. average was constant. A termination from uræmia was expected, but acute abdominal pain supervened suddenly, when a hard mass could be felt in the umbilical region. No blood or mucus was passed, and an enema produced a small result. Consciousness was preserved almost to the end, and no convulsions or twitches occurred, death taking place two days later. Post-mortem examination disclosed the presence of an intussusception of the ileum at a point $2\frac{1}{2}$ feet above the ileo-cæcal valve as the immediate cause of death. The right kidney weighed barely 1 oz., was pale grey in colour, with a mottled surface. The capsule was thickened and very adherent, leaving a granular surface when stripped. The cortex was much diminished and almost absent in places, otherwise very little renal tissue was left, the gland being almost entirely occupied by a uniform dilatation of the calices with thickened smooth walls, containing a turbid fluid. The pelvis was dilated and the vessels were thickened. The ureter was uniformly enlarged to the size of a pencil. The left kidney weighed 3 oz., was pale in colour, and of unusual shape, triangular in section owing to an apparent hypertrophy of the upper pole. The capsule was thickened but was adherent in a few places only, leaving a finely granular surface, with dilated venæ stellatæ over the upper end. The distinction between cortex and medulla was almost entirely lost. The arterioles were thickened. The pelvis was a little dilated, but the ureter was uniformly dilated almost to the size of the little finger. The bladder wall was hypertrophied, with prominent fasciculi over its inner surface. A mild degree of cystitis was present. The urinary passages were patent throughout. No cause was found for the condition of hydronephrosis and dilatation of the ureters. There was no abnormality of the vessels, nor of the pelvis or ureter on either side. The heart weighed 12 oz. and showed considerable hypertrophy of the left ventricle, the wall being almost one inch in thickness. The root of the aorta, also its descending portion around the orifices of the intercostal arteries, showed early degenerative changes of the intima.

Dr. H. A. HAIG detailed the histological features, and Mr. TUDOR THOMAS described the retinal condition.

Multiple Superficial Tumours (?).

MR. J. W. GEARY GRANT showed a girl, 18 years of age, with multiple swellings over the face, arms, trunk, and buttocks, fresh ones appearing during the preceding fortnight. The first was noted four years ago over the left submaxillary joint; it was now vertically oval, about 2 inches by 1 inch, protruded slightly above the adjoining skin, and felt soft and semi-fluid; the skin over it appeared to be thinned. Masses elsewhere were smaller in size, and some felt almost like lax cysts, underlying thinned-out skin. All appeared to possess a brownish tinge, as though the overlying skin was pigmented. The diagnosis lay between multiple hæmorrhagic sarcomata of the skin, endotheliomata, naevi, and an unusual form of von Recklinghausen's disease. A section through one of the swellings removed from the scapular region showed a predominating connective-tissue element, with myxomatous change and evidence of œdema. Where the œdema was present the collagen fibrils took on a modified stain. There were no nervous elements to be detected. This appearance closely resembled one of the rarer types of von Recklinghausen's disease.

Bone Formation in a Laparotomy Scar.

MR. J. BERRY HAYCRAFT showed a specimen of bone formation in a laparotomy scar. In September, 1921, a laparotomy was performed on a pensioner, aged 33. A chronic ulcer was found on the anterior wall of the stomach close to the pylorus. A posterior gastro-jejunosomy was done, and the appendix was removed. Four months later a lump was noticed in the scar; it was growing and became tender and the patient was readmitted in February, 1923. A hard lump was found in the centre of the scar, about the size of a walnut, 2 inches above and a little to the left of the umbilicus. It was not adherent to the skin, and was tender on pressure. This was explored on Feb. 17th; the tissue in the centre of the scar was found to consist of a hard mass in the rectus muscle, and deep to this was a thin plate of what appeared to be bone lying between the peritoneum and the rectus muscle. It was excised, and there was no evidence of any formation of bone in any other muscle.

Prof. E. EMRYS-ROBERTS pointed out that actively proliferating fibroblasts could, as a result of environmental stimulus, give rise not only to ordinary fibroblasts, but, under certain circumstances, to myxoblasts, chondroblasts, and osteoblasts; the variants resulting from the alterations in the types of intercellular material secreted by the cells concerned. In this case the fibroblasts had developed directly into osteoblasts, without any indication of intermediary forms, in a manner similar to the development of membranous bone.

Embolism of the Central Artery of the Retina.

MR. TUDOR THOMAS showed a young man, aged 27, who had suddenly become blind in the right eye 17 days previously. On examination two days after the onset of the blindness the right eye was found to be completely blind. The fundus showed a dark-red macula, with a large area of greyish-white retina around in which the arteries were visible only as lines. The periphery of the fundus was of a normal colour, and the arteries were of a normal size. There was not much alteration in the size of the veins. The disc was white, and near its outer border was a small hæmorrhage. Seventeen days after the onset of blindness he was able to count fingers at about a metre, but there was an absolute central scotoma. The disc was white, and the arteries around the macular area were very much contracted, and in some of the branches the blood seemed to be split up into segments of red and white. The macula was visible as a red spot, with small yellow dots radiating from it in a very small circular area. The retina around the macular area was still grey in appearance, but the colour was not so pronounced as at the first examination. Above the macula were two small hæmorrhages. The margin of the disc was blurred and indefinite. The previous history of the patient did not reveal any transient attacks of blindness, and his last illness was nine years previously, when he had swellings in the neck, which appear to

have been enlarged glands. He was a collier, and had always been able to perform hard work. He stated that he occasionally had attacks of palpitation, usually brought on by excitement. Examination of the heart did not reveal any murmurs, and it appeared to be normal. The Wassermann reaction was negative. Although the appearances in this case were those of embolism of the central retinal artery, there was no clinical evidence as to the source of the embolism; it was surmised that the condition was due to spasm of the retinal arteries, with subsequent thrombosis.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

JOINT MEETING OF THE SECTIONS OF MEDICINE AND SURGERY.

THIS joint meeting was held on March 16th, Dr. H. T. BEWLEY (in the absence through illness of the President, Dr. T. G. Moorhead) in the chair. The Secretary read a paper, written by the PRESIDENT, to initiate a discussion on the subject of

HYPERTHYROIDISM: DIAGNOSIS, VARIETIES, AND TREATMENT.

Dr. Moorhead began by reviewing existing knowledge. He referred to the frequent association of persistent thymus with enlargement of the thyroid. Mental factors, such as frights, were often associated (details of two such cases of his own were given). The possibility of gastro-intestinal infection as an ætiological factor was also mentioned. As regards diagnosis, he thought that the gastro-intestinal symptoms of hyperthyroidism were those most likely to be overlooked; in obscure cases a determination of basal metabolism would decide. Lymphocytosis occurred also in simple goitre, and was valueless as a distinguishing test. Tachycardia was, in his opinion, the most constant sign. Loss of weight was also very important. The association of Graves's disease and myxœdema in the same patient was sometimes, though rarely, found. As regards prognosis, gain of weight and diminution of tachycardia under treatment were favourable signs, but in cured cases the goitre and the exophthalmos frequently persisted. He was strongly opposed to surgical treatment of the condition, believing that proper medical treatment with X rays would cure the great majority of cases.

Sir WILLIAM WHEELER said that his interest had been stimulated by visits to Kocher at Berne, and by watching the operative work of Mayo and Crile. Recent advances had made the surgical treatment of cases of hyperthyroidism safe, and the mortality was almost negligible. There were really only three types of goitre: (1) The colloid, seen in young girls, with full symmetrical neck, associated sometimes with extreme nervousness, and difficult to distinguish from hyperthyroidism. The basal metabolic rate was the only sure method of differentiation. This was the type of goitre which responded to treatment with iodine, or its derivatives, or with thyroid extract. (2) The adenomatous goitre, in which operation might be delayed, in consideration of the importance of the thyroid gland in adult life, although adenomata frequently became toxic after a period of 15 years or so. Toxic goitre differed in many respects from Graves's disease; it was more dangerous, and gave rise more certainly to degenerative changes in the viscera. (3) The hyperthyroid cases, which were regarded in a general way as Graves's disease. Surgical treatment, he thought, was more certain than any other method. X ray treatment had the drawback that if the dose was too big myxœdema followed, and if too small the patient had a relapse. Should surgery become necessary after X ray treatment, it was complicated by the presence of fibrous tissue and adhesions. The only fatal case which he had come across was a case of adenomatous goitre, which, at the time of operation, was thought to be non-toxic, although the patient died suddenly from myocardial degeneration. Measurement of the basal metabolic

rate would have led to recognition of the nature of this case.

SIR JOHN MOORE said that as physician to a girls' school with 60 pupils not a year passed without some girls being brought to him on account of enlargement of the thyroid gland. These patients did well when treated for anaemia and given regular moderate doses of thyroid extract. In the early stages of goitre he was of opinion that if the patient was made to rise, with a fixed neck, from the recumbent position the thyroid gland would be emptied.

MR. A. A. MCCONNELL said the question to him seemed to be: was it safe to treat cases by gradual destruction of the glandular tissue by X rays, or was it better to treat them at once by operation? He believed that the mortality in these cases was as great under medical as under surgical treatment.

DR. W. C. MACFETRIDGE discussed the causation of exophthalmos, which could not, he thought, be due to excess of fat in the orbit.

DR. G. E. NESBITT said that hyperthyroidism seemed to be rather rare in Dublin at present. A question of diagnosis arose in cases without enlargement of the thyroid, when a diagnosis could only be established by the measurement of the basal metabolic rate. X ray dosage was capable of almost mathematical accuracy.

DR. BEWLEY said he had noticed the frequency of colloid goitre. He did not know what the cause of the condition was, but the water-supply in Dublin had nothing to do with it, because similar cases existed all over Ireland. He had seen only one case of acute hyperthyroidism. Regarding treatment, he thought that cases of the extreme kind should be treated at first, at any rate, by rest, sedatives, and X rays. Cases of medium severity he thought were best treated by surgery. The difficulty with regard to hospital patients was that they could not spare time to undergo prolonged rest.

SECTION OF STATE MEDICINE.

AT a meeting of this section on March 23rd, Mr. T. HENNESSY, the President, being in the chair, Dr. T. P. C. KIRKPATRICK read a paper on the

Work of a Venereal Disease Treatment Centre.

He described the procedure adopted at the centre opened at Steevens's Hospital in January, 1919, under the auspices of the Corporation of Dublin and the Local Government Board. In the four years ending Dec. 31st, 1922, 4222 patients presented themselves at the clinic, of whom 743 were women and children; of these women and children 355 were suffering from syphilis. The treatment relied on was the intravenous administration of novarsenobillon, given in weekly injections over a period of eight weeks during which time 4.05 g. of the drug were given. Subsequent treatment was guided by the condition of the patient and the blood Wassermann reaction. The results on the whole had been satisfactory, and out of the 78 patients with syphilis who presented themselves at the women's department in 1919 11 had given birth to healthy children subsequent to treatment.

There was a lively discussion, in which Sir ARTHUR BALL, MR. A. CHANCE, SIR JOHN MOORE, DR. ELLA WEBB, DR. W. A. O'KELLY, DR. W. M. CROFTON, DR. W. BOXWELL, and DR. G. E. NESBITT took part.

LIVERPOOL MEDICAL INSTITUTION.

A JOINT meeting with the Manchester Medical Society was held on March 22nd, Prof. J. HILL ABRAM, the President, being in the chair.

DR. H. T. ASHBY read a paper on

Croupous Pneumonia in Children and its Complications.

He said that croupous pneumonia is a common disease at all ages of childhood after about the ninth month, before which age it is the broncho-pneumonia which

predominates. Croupous pneumonia may be classified according to the time when the physical signs make their appearance. These latter may be present at once, they may at times be delayed for a day or two, or they may never be present at all. The diagnosis of the last type is made by the history of the sudden onset, the cough, the rapid breathing, the high temperature which keeps up, and the general look of the child. Fever of obscure origin in children often turns out to be croupous pneumonia. The delirium and convulsions during a severe attack of pneumonia, especially in highly-strung children, are sometimes so marked that the disease is pronounced as being meningitis. The progress of acute croupous pneumonia in children is good in uncomplicated cases and even in the so-called chronic pneumonia the outlook is good. Tuberculosis is a rare complication of pneumonia. There is no complication to rival empyema in frequency and in seriousness. It should be a golden rule to explore any doubtful case and if pus is present the earliest possible moment for its evacuation is essential to get the best results. Empyemata in older children do well with the ordinary operation and drainage-tube, although it is often a tedious recovery and a weak lung for the future. Empyemata in young children under two years of age do very badly, and this is where some new treatment is needed. The method of aspirating the empyema seems to give the best results, and it has the advantage that the child begins to take food again well and gain strength, even though the usual open operation has to be resorted to later. The pneumococcal empyemata do better as a rule than any other kind.

MR. GEOFFREY JEFFERSON read a short paper on

Injuries to the Cervical Spine.

He confined himself in the main to those cases where concomitant nerve and spine injury were not present. He said that during the last 40 years it had been learnt to recognise and usually accurately to diagnose vertebral fractures of the lower thoracic and lumbar vertebrae, even when the fracture involves the bodies of the vertebrae alone, and the spinal canal is in no way encroached upon. In 1891 Kuemmell had drawn attention to spinal deformity resulting from previous injury. The clinical picture resembled healed spinal caries, but the clinical histories were, of course, quite different. Not so much attention, indeed very little, had been paid to the very similar cases which were seen not uncommonly in the neck. These were again sometimes compression fractures, sometimes dislocations. Mr. Jefferson referred to the pathological anatomy of the injuries, and to the conditions found at autopsy in the fatal cases. Most careful X-ray examinations are necessary for the diagnosis, and the speaker referred to certain fallacies in the clinical examination of these subjects. As for treatment, his figures showed a greatly improved mortality-rate over that usually quoted, but this was, he said, not due to any special excellence of treatment, but rather to improvements in diagnosis which led to the recognition of the slighter cases, these reducing the percentage of deaths very considerably. The death-rate in cases with complete physiological division of the cord at a high segment will probably always be enormous. Mr. Jefferson counselled against laminectomy in cervical injuries, at all events in the early stages, and pinned his faith to reduction of the broken or dislocated bones and immobilisation.

DR. G. H. LANCASHIRE read a paper on

Urticaria.

He dealt especially with the treatment of the chronic form in adults, laying stress on the importance of an initial rest, bodily and mental, in addition to diet and drugs. The value of the skin protein-reaction appeared doubtful. Clothing was a matter of importance, and, in fact, success was only obtained by attention to detail in many directions, the cause of the trouble being often complex, including a psychic factor.

Reviews and Notices of Books.

THE STORY OF DRUGS.

A Popular Exposition of their Origin, Preparations, and Commercial Importance. By HENRY C. FULLER. London: T. Werner Laurie, Ltd. 1922. Pp. 358. 15s.

THIS volume of the Century Books of Useful Science will certainly be of interest to the layman for whom it is intended, but it is equally instructive to the physician and it will, in the few places where formulæ and scientific names are used, be more easily understood by him than by the layman. In these days of big manufacturing firms and specialised medicines the doctor often knows too little of the origin of his drugs, and the information imparted by much of this book will be valuable as well as good reading.

The work consists of 14 chapters which are really a series of pleasant essays, generally independent, but with the theme of the adventures of drugs from their origin to the time they come to the consumer. The choice of subjects is thoughtful. The first chapter treats of the homes of drug-producing plants, of attempts to introduce them to fresh countries, especially to America, and of the stimulus given by the war to these attempts. Next comes the manufacture of medicines and the history of its transference from the corner shop of the apothecary to the big factory of some well-known firm. Another chapter deals with the place of patent medicines, which the writer points out would be more appropriately designated proprietary medicines. He holds that they are necessary, and under the strict rules of the Proprietary Association of America, to which all leading firms belong, are safe and beneficial. Sections on Self Medication and the Family Medicine Chest bring out the patient's point of view on a subject which, though difficult, has to be faced; those on vaccines and serum therapy, and vitamins deal clearly with these special modes of treatment. Hay fever, "the malady of strenuous America," is the only disease which receives a chapter to itself; its relation to the presence of the common ragweed (*Ambrosia artemisiifolia*) is emphasised. The chapter on the Rôle of Alcohol brings out the large part played by this drug in the preparation of other drugs, and is especially interesting in view of prohibition. Here the difficulties which have arisen and how they have been met show how great has been the social and mercantile revolution. At first the manufacture of alcohol-containing drugs was enormously increased, but gradually this has been brought down to the point where it was before prohibition was introduced; preparations bought for the sake of their alcohol have been eliminated. While the legal side of alcohol appeals to the American more than to us, that of morphia and cocaine, which is fully dealt with in a chapter called *Dope and Not Dope*, is brought home to us by recent legislation. The essay on cosmetics called *Paint, Powder, and Rouge* makes quaint appeal to all, and is instructive to the medical man, for there are many useful hints in this borderline chapter.

The style of the book is easy; the writer knows his subject well, and he gives his own accumulated experience and not some other person's knowledge. Whether he speaks of production, manufacture, or legal restrictions, or therapeutic application, there is the same convincing informal flow, interspersed with crisp advice and picturesque similes.

THE MEASUREMENT OF EMOTION.

By S. WHATELY SMITH, M.A., Editor of *Psyche*. London: Kegan Paul. 1922. Pp. 184. 10s. 6d.

THE psycho-galvanic reflex is a change in bodily resistance to electrical conduction observed in subjects to whom stimuli are experimentally applied. Veraguth in 1907 combined the word association test with observations on the reflex, the practical uses of which Golla and Prideaux have shown in this country. Mr. Whately Smith's experiments involve thousands

of observations, and he correlates the results with purely psychological conclusions already reached by other observers; for example, he shows that to forget items of experience that one would expect easily to remember is of the nature of repression and due to the negative affective tone associated with the forgotten material. The author finds that the affective tone of a word as detected by the psychogalvanometer is exerted in opposite directions; the word may be better remembered than a less intensely toned word or may be forgotten more quickly. Hence, he deduces the presence of a negative and a positive tone, though the reflex itself gives no indication of these qualities.

In reaching this conclusion and others, he has brought methods of scientific measurement to bear upon factors otherwise capable only of subjective valuation. The title of the book, however, is questionable: the psycho-galvanic reflex measures something, but there are several bridges to be built before we can assume that this something is emotion or has a one-to-one correlation with it.

CHEMICAL PHYSIOLOGY.

Fundamentals of Biochemistry in Relation to Human Physiology. By T. R. PARSONS, B.Sc. Lond., Demonstrator in Physiology in the University of Cambridge. Cambridge: W. Heffer and Sons, Ltd. 1923. Pp. 281. 10s. 6d.

THIS bird's-eye view of theoretical chemical physiology provides interesting reading to the initiated, and there does not seem any reason why it should not prove of equal interest to the student who can be persuaded to devote time to its perusal. A certain amount of overlapping with pure chemistry and pure physiology is inevitable in the presentation of a clear picture of what the author prefers to call biochemistry, but which might correctly be called chemical physiology. Mr. Parsons has a gift of clear expression, and has succeeded in introducing a remarkable quantity of information in this elementary book; the summaries, some of them in the form of tables, should prove very useful to students. The book appears from the following extract to have been rather a long time in the press: "It might be thought that the simplest and most obvious treatment for diabetes would be to supply the missing substance formed by the islands of Langerhans, but so far no extract of pancreas has been obtained which contains the active principle in a suitable form." The rather inept quotations which head some of the chapters might well be omitted from a future edition. The short bibliography at the end of each section will enable the student to pursue the subject further if he so desires. This is a book to read, and have.

JUNIOR REGIONAL GEOGRAPHIES.

By W. H. BARKER, B.Sc., F.R.G.S., and LEONARD BROOKS, M.A., F.R.G.S. Part II.: *The British Isles*. University of London Press. 1923. Pp. 174. 2s.

THIS is the second volume of a new series of regional geographies intended for use in the upper classes of elementary schools and in the lower forms of secondary schools. The British schoolboy may regard himself as happy in having such an attractive guide to his home land. The manual is divided into 15 chapters, starting with the home as the central point of geographical interest, passing on to the consideration of islands and seas, highlands and lowlands, food and climate, then to the features of special areas, and concluding with two chapters on communications and the relations of Britain to the world outside. There are 48 illustrations and maps, the most striking being a series of typical landscapes taken from the air: an agricultural village, a highland scene, a garden suburb, the surroundings of a dockyard. The book should realise the authors' hope that it will prove useful wherever young students are making a first regional study of their own country.

LA GOUTTE.

Sur quelques points controversés ou mal connus de son histoire. By CH. FINCK. Paris: L'Expansion Scientifique Française. 1922. Pp. 80. Fr.4.50.

This little pamphlet sets out the views of one of the physicians at Vittel, on the pathology of gout and other chronic arthritic diseases. Whilst depending more on clinical than on post-mortem experience, and so lacking that exactitude which is required of data if final judgment is to be made, it will be read with interest by those who have made a special study of balneotherapy.

THE OMNIPOTENT SELF.

By PAUL BOUSFIELD, M.R.C.S. Eng., L.R.C.P. Lond., Physician to the London Neurological Clinic. Author of "The Elements of Practical Psycho-analysis." London: Kegan Paul. 1923. Pp. 171. 5s.

WRITTEN in popular style, this book gives a brief account of unconscious processes before coming to the main theme, which is that many troubles in life depend upon Narcissism or unwitting selfishness. This is to be overcome by a method of introspection—claimed to rest upon psycho-analytic principles—followed by a process of readjustment, aided by auto-suggestion along the lines made familiar by Mr. Coué. The efficacy of the method does not seem to be established, but the attempt is not likely to do harm. The fulsome recommendation on the wrapper is unsuitable in connexion with a book written for lay readers by a medical man, and doubtless the author is not responsible therefor.

JOURNALS.

IN the JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE for January Surgeon Rear-Admiral J. Shand, as a result of his long experience, tells us that in China the round worm is a powerful agent in the extension of tuberculosis, and that many other diseases which are met on that station can also be cured by the administration of *santonin* by itself. He quotes particularly cases of neuritis and asthma of two or three years' standing.—Surgeon Commander R. H. McGiffin is anxious that the treatment of syphilis shall be standardised, somewhat on the lines proposed by Surgeon Captain L. Kilroy in an earlier number (THE LANCET, Dec. 31st, 1921). In his own ship he gives to every man with a positive Wassermann reaction two sulfarsenol courses, each of eight fortnightly subcutaneous injections (0.48 g. in each of the first six, 0.6 g. in each of the two later); each course is followed by three months' rest, when a W.R. is again taken. Two consecutive negative W.R.'s must be obtained before the patient is discharged as needing no more treatment. In the 40 cases of which Commander McGiffin reports he got his negative results in all but one, and that patient left the ship too soon—in four months. Intravenous medication is recommended in hospital, but subcutaneous in ships, the method being more convenient and painless. As to intramuscular injection, "patients sooner or later refuse to have it."

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol. XX. January-March, 1923.—Dr. Leonard Findlay contributes a paper on the Treatment of Congenital Hypertrophic Pyloric Stenosis: Medicine Versus Surgery, based on observations on 62 hospital cases and 18 cases seen in private practice. His conclusions are as follows: 1. Spasm of the hypertrophied pylorus is the most important factor in causing the symptoms. 2. The results of treatment are invariably better in private than in hospital practice. 3. Medical measures give as good, if not better, results than operation. 4. Operation should probably be reserved for the youngest cases, and for those seen soon after the onset of the symptoms. 5. The great danger to

be avoided in any form of treatment is underfeeding. 6. The infant with congenital hypertrophic pyloric stenosis requires constant and individual care.—Dr. J. D. Rolleston records a case of Hereditary Tylosis, otherwise known as *keratoderma palmaris et plantaris hereditaria*, *keratoma palmare et plantare*, congenital ichthyosis, and *acrokeratoderma*, of which he remarks that though the condition is well known to dermatologists, it has received little attention in pædiatric literature. The patient, a girl aged 2 years, showed a symmetrical thickening of the epidermis of the palms and soles, the thickening ending abruptly at the border of the palmar and plantar surfaces, and separated from the normal skin by a narrow pinkish halo. The condition had been first noted a few months after birth, and had gradually become more pronounced. There were no skin lesions elsewhere. The father was similarly affected, and the child represented the fifth generation affected. Rolleston has collected eight other examples of tylosis occurring in five generations, and alludes to its endemic occurrence in the island of Meleda, off the coast of Dalmatia, when it was first mistaken for leprosy.—Dr. G. Fløystrup, of Copenhagen, reports a case of Rubella Without Rash. A boy, aged 9, after exposure to infection at school developed all the symptoms of rubella, including cervical and occipital adenitis, coryza, conjunctivitis, and slight rise of temperature, but no eruption apart from a very few pale macules on the cheeks of a few hours' duration. The diagnosis was confirmed by the patient's brother developing rubella a fortnight later.—Dr. John Thomson contributes notes of a case of Extreme Recurrent Drowsiness in a Child, apparently due to hepatic disturbance. During the first six years of life the patient had attacks of dropping off to sleep in the daytime at periods varying from three weeks to six months. During the intervals he was perfectly well and happy. On examination during an attack the only abnormal signs found were a thick brown fur on the tongue, definite increase of cardiac dullness to the right, with visible epigastric pulsation and enlargement of the liver (three fingers-breadth), which was quite soft. Under treatment with bicarbonate of soda, *nux vomica*, and infusion of gentian, alternating with small doses of *calomel*, the attacks grew less frequent and ceased altogether. At the present time the patient is a strong athletic youth of 21, with a normal heart and liver.—Dr. F. Parkes Weber records a case of Raynaud's Syndrome in a Non-Syphilitic Infant with a remarkable family history. The patient was a female infant, aged 12 months, who had been suffering from recurrent attacks of Raynaud's syndrome since the age of three months. The father suffered from recurrent attacks of headache and vomiting, one brother of the father had asthma, another brother and sister had died of diabetes mellitus, and the patient's paternal grandfather, whose case had been reported in THE LANCET,¹ had thrombo-angiitis obliterans.—Dr. G. H. Sutherland describes the autopsy on a case of Congenital Aneurysm of the Pulmonary Artery, in which the diagnosis made during life was confirmed. Other congenital defects present were a supernumerary toe, fusion of the fourth and fifth digits, and a double nail in the fifth digit.—Dr. F. J. Poynton and Mr. W. Williams report a case of Sudden Death from Blocking of the Air Passages by a Caseous Gland in a boy of 9 years.—In a paper entitled Albuminuria in a Family of Children, Dr. Hazel H. Chodak Gregory gives an account of a family of four children suffering from nephritis, two at least of whom were born with albuminuria. The urine of the father and mother was free from albumin. There was no history or other evidence of congenital syphilis in the children, and the Wassermann reaction tested in the mother and three of the children was negative.—The abstracts from current literature are devoted to genito-urinary diseases and dermatology.

¹ THE LANCET, 1908, i., 152; 1913, i., 169.

THE LANCET.

LONDON: SATURDAY, APRIL 7, 1923.

INSANITY AND THE CRIMINAL LAW.

THE responsibility of insane persons guilty of offences against the criminal law has always been more or less a matter of dispute between the legal and the medical professions, and the question has now entered on a more acute phase. Some eight months ago the action of the Home Secretary in the case of RONALD TRUE, who was sentenced to death for the murder of a prostitute and was reprieved after a statutory inquiry into his mental condition, gave rise to an emotional expression in the public press, in Parliament, and even on the judicial bench. The reaction on public feeling showed a curious resemblance to the effect produced in the middle of the last century by the acquittal, on the ground of insanity, of the lunatic M'NAUGHTON, who murdered Sir ROBERT PEEL'S private secretary. Nor was this the only feature common to the two causes célèbres. In the M'Naughton case the House of Lords took the unusual course of inviting from the bench of judges a statement of the law regarding the limits and the mode of presentation of the plea of insanity in criminal cases; and the answers of the judges to the queries put to them have become historic, for they furnished the basis of the test of responsibility which is accepted as authoritative in the English courts down to the present day. In the similar circumstances consequent on the discussion of the True case, and perhaps having in mind the M'Naughton precedent, the Lord Chancellor some months ago appointed a committee of legal and administrative experts, under the chairmanship of Lord Justice ATKIN, "to consider and report upon what changes, if any, are desirable in the existing law, practice, and procedure relating to criminal trials in which the plea of insanity as a defence is raised, and whether any and, if so, what changes should be made to the existing law and practice respecting cases falling within the provisions of Section 2, Sub-section 4, of the Criminal Lunatics Act, 1884." The importance of a clear and adequate presentation of medical opinion on the matters comprised within these terms of reference was at once recognised both by the Committee and by the medical profession; and two medical organisations—the British Medical Association and the Medico-Psychological Association of Great Britain and Ireland—accordingly appointed representative subcommittees to discuss the matters at issue, and to prepare memoranda of evidence for submission to the Lord Chancellor's Committee. The text of one of these memoranda is reprinted on p. 717; the other may be read in the *British Medical Journal* of March 24th. It may, perhaps, be questioned whether on such an occasion the expression of medical opinion would not have been more effective if it had been embodied in a single document, rather than in two separate memoranda which would appear to have been prepared without joint consideration, and even to be adjusted to different points of view.

The present position regarding the criminal responsibility of insane persons is hardly of practical importance except in capital cases, for it is only in such

cases that there is a radical and irrevocable difference between the modes in which society reacts against the sane and against the insane offender; and it may be added that it is chiefly as potential homicide that the insane menace public security. This limitation was clearly in the mind of the Lord Chancellor in appointing the Atkin Committee, for the procedure under the Criminal Lunatics Act of 1884, to which attention is specially directed in the terms of reference, deals exclusively with persons under sentence of death. The memoranda take a much wider range, but it will not be necessary here to go beyond the particular problem of responsibility in cases of homicidal crime. Under the law as it exists at present, the question of the mental state of a person accused of murder may be raised on his indictment, when his fitness to plead and to understand the proceedings of the trial is decided by a jury impanelled for the purpose. Should he be found unfit to plead by reason of his condition at the time of the arraignment, he is ordered to be detained as a criminal lunatic, and no evidence is considered in proof of his guilt of the alleged act. If, on the other hand, he is found fit to plead, or if no question of his fitness is raised, the trial proceeds. If the accused now pleads guilty, he must be condemned to death, even if he be obviously insane, unless the judge—by a stretching of his authority for which there does not appear to be much legal warrant—refuses to accept the plea, and enters a plea of "Not guilty." When the plea of "Not guilty," whether entered with or without the consent of the accused, is based on a defence of insanity, it is necessary, according to the authoritative test, founded on the so-called M'Naughton Rules, to prove "that at the time of committing the act, the party accused was labouring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong." The absurdity of this test, which makes disorder of intellect the sole criterion of insanity, has been the theme of psychiatric criticism since its formulation, and it is hardly questioned, even by jurists, that its strict application would lead to the condemnation of the majority of insane murderers. It does not have this effect, simply because most judges, when satisfied that the offender is really a lunatic, ignore or evade the test; and if, as occasionally happens, a judge fails to exercise common sense in this way, the jury will frequently reject his direction and return a verdict of "guilty but insane." In the comparatively few remaining instances, where an insane murderer has been sentenced to death, the Home Secretary has power, under the section of the Criminal Lunatics Act referred to above, to order an expert inquiry into the prisoner's mental condition, and if such inquiry shows that the convict is insane, the sentence is not carried out. In practice, therefore, there is little or no risk of a lunatic being hanged; and in fact a Committee of the Medico-Psychological Association, which considered this question exhaustively in 1896, failed to find, within the period covered by its inquiry, any instance of such a miscarriage of justice. This Committee reported that, while disapproving the existing legal test of insanity, they were unable to make any suggestions for amending the law. It is significant in connexion with the then attitude of the psychiatric experts to note that the Atkin Committee had its origin in a sense of dissatisfaction with the state of the law, not on the ground of its undue severity, but rather from a feeling that its excessive laxity threatened the public safety.

It is thus the lawyers and not the doctors who in the present instance are the primary advocates of change. This fact does not appear to have been kept adequately in view in the proposals put forward in the two medical memoranda; and it is probable that legal critics may complain that neither of these documents offers any constructive suggestions, except in regard to the mode of presenting expert evidence, which go to meet the admitted difficulty of justice in dealing with offenders on the borderline between sanity and insanity. The absence in this connexion from both memoranda of any reference to the principle of diminished responsibility, which is being adopted as a partial solution of this difficulty in other countries, weakens the statement of the medical position. On the other hand, both subcommittees have addressed themselves to the task of amending the legal test of responsibility; the memorandum of the British Medical Association proposes to add a clause recognising morbid incapacity of control as a ground of irresponsibility, and also suggests a modification of the wording of the test in regard to the power of knowing and appreciating the character of the criminal act. It is always rather risky for medical men to involve themselves in the subtleties of legal phraseology, and it is not unlikely that some member of the Lord Chancellor's Committee may be inclined to make caustic comment on the proposal that a murderer should be held irresponsible on account of mental disability, if such disability, though not interfering with his knowledge of the nature and quality of his act, prevented him from "appreciating the circumstances in which it is done"—such a circumstance, e.g., as the presence of an unobserved witness. The Medico-Psychological subcommittee seem to have been better advised in deprecating any analytical test of legal insanity, and in proposing that, instead of the M'Naughton Rules, the judge should put the issue to the jury in the form of three questions: (a) Did the prisoner commit the act alleged? (b) If he did, was he at the time insane? (c) If he was insane, has it nevertheless been proved to the satisfaction of the jury that his crime was unrelated to his mental disorder? This way of formulating the issue would allow the expert witness to give his evidence in his own language without having to obscure and distort it by translation into terms of legal technicality alien to his training and manner of thought, and it would thus make his statement of facts and conclusions far more accessible to the common sense of the jury. At the same time, without introducing any greater laxity than already exists in practice under the present system, it would remove from the English law the reproach of maintaining an obsolete, unscientific, and ineffectual formula.

A matter of equal, if not greater importance than the terms of the legal test of insanity, is the mode in which expert evidence is put before the court in cases involving this issue. On this point there is a marked divergence of opinion between the two medical subcommittees; the memorandum of the British Medical Association insists rightly and forcibly on the defects of the existing system by which expert evidence of insanity is given by ex-parte witnesses on either side, to the confusion of judge and jury, and, in the case of persons without means, possibly to the prejudice of justice; it advocates instead the provision of machinery for the independent and impartial mental examination of accused persons by a member or members of a panel of psychiatric physicians of recognised standing, whose report should be furnished to the prosecution and to the defence, and should be supported by personal evidence

in court. For some undisclosed reason the idea of impartial expert witnesses does not seem to have commended itself to the Medico-Psychological subcommittee, who devote merely a few lines to it in their memorandum, rejecting any proposal of a system of medical assessors, but admitting that "it might be possible" to appoint a panel of accredited experts, to be employed at the discretion of the court, but without interference with the existing system of ex-parte evidence. Both subcommittees are in agreement in opposing any alteration of the section of the Criminal Lunatics Act which empowers the Home Secretary to institute a statutory inquiry into the mental condition of prisoners under sentence of death. As a safeguard against possible miscarriages of justice some procedure of this sort is obviously essential, and if the enactment establishing it were repealed, popular clamour would insist on its restoration on the occurrence of the first case of doubt as to the sanity of a condemned murderer.

The memoranda also make a number of recommendations, many of them rather debatable, on matters of subsidiary importance, such as the right of appeal from the verdict of "Guilty, but insane," and the position of those unfit to plead. These memoranda represent the outcome of much painstaking labour, and they deal with questions in which the medical profession has a serious and responsible interest. On that account the conclusions will be sympathetically as well as carefully scrutinised, and any criticisms which may be passed upon them will, no doubt, be tempered by a due recognition of the extremely difficult and complex character of the questions which the subcommittees had to consider.

TUMOURS OF THE BLADDER.

URINARY disturbances of any kind, apart from what innately bad qualities they possess, bring in their trail an immense amount of physical and mental suffering. If they are irremediable, as so often happens when malignant disease has been allowed to progress too far, the plight of the victims is truly pitiable. New growths of the bladder must be included amongst the very grave urinary diseases. They possess certain characters which are seen scarcely anywhere else in the body. The papillomata, which are quite benign and local growths, show an extraordinary capacity for grafting portions of their substance on other parts of the bladder mucosa. They exhibit almost the infective characteristics of warts of the skin, in the manner in which they will give rise to satellite lesions, but, unlike the cutaneous papillomata, they unfortunately show no propensity to sudden and inexplicable disappearance. Another notable feature of bladder tumours is the fact that, to the naked eye, a malignant growth may be indistinguishable from a simple papilloma, and even under the microscope differentiation becomes possible only when the growing infiltrating margin at the base comes under view. A fortunate circumstance is that distant secondary growths occur late, or perhaps local spread gives rise to early symptoms and so calls attention to the presence of some bladder lesion. But though hæmaturia, the cardinal symptom of bladder tumours, occurs early, it is very often only an evanescent manifestation and so is apt to be disregarded.

In his lecture delivered at the Mayo Clinic, and printed in three recent issues of THE LANCET, Mr. FRANK KIDD reiterates his teaching of years, that hæmaturia necessitates cystoscopy. Even in these days the practitioner does not always follow this course, for he knows very well that many cases of

hæmaturia of renal origin, without demonstrable lesions, occur once, never to reappear. Nevertheless this is a policy dangerous to pursue, for delay may render radical treatment difficult, fraught with great risk, or altogether impossible. Mr. KIDD's views on the treatment of vesical tumours based on a personal experience of 162 cases claim great respect. Few surgeons have dealt with so many patients of whom they have accurate notes of the early and remote after-histories. That 90 per cent. of simple papillomata may be cured by Beer's fulguration method is an immense advance on the old intravesical excisions, where secondary implantation almost invariably occurred. Mr. KIDD favours the destruction of papillomata if possible at one sitting under general anaesthesia, in contrast with the multiple cauterisations which many urologists carry out. What is notable also, is the possibility of curing completely an early malignant growth by diathermy through the cystoscope. Other surgeons of less experience can corroborate this statement, although microscopic demonstration of the nature of the tumour is impossible, as it is destroyed. They would be certain to confirm the observation that some small malignant papillomata are very resistant to diathermy. The results Mr. KIDD has obtained by operative removal of malignant tumours, using a modified Squier's technique, are remarkable: 11 out of 28 patients are known to be alive and well from one to 11 years after operation. This result is not possible of achievement by the older technique of excision after cystotomy. It renders the outlook for the unfortunate sufferer from a malignant tumour of the bladder far less grave than it is commonly believed to be.

RECENT WORK ON BLOOD-SUGAR.

CARBOHYDRATES and proteins take precedence in biological chemistry over other compounds, inasmuch as they are essential to life and growth, and an additional stimulus was added to the study of carbohydrate metabolism when WILLIS showed that diabetes mellitus was associated with glycosuria. The landmarks in the growth of this knowledge are too well known to recapitulate here. Recently, however, experimental data have been published which substantially modify the existing views. First and foremost, under the inspiration of Prof. J. J. R. MACLEOD, the Toronto School have been able to produce an active pancreatic preparation, the injection of which reduces the blood-sugar and produces an intermission in the glycosuria of diabetics. Insulin is in fact the first striking success in a series of investigations, begun by MINKOWSKI when he produced diabetes by depancreatising animals, and hitherto almost fruitless. The comparative scarcity of ox pancreas has naturally led laboratory workers interested in insulin to look around for a more abundant raw material. What more natural than that they should turn to yeast, whose enzyme has been known for years to break up glucose into carbon dioxide and alcohol, a process which probably occurs also in the body. Long before the announcement of insulin physicians saw in yeast the cure of diabetes; but apart from rendering patients extremely uncomfortable with eructations, no therapeutic effect followed its administration. Early this year¹ some experimental work was published from the Biochemical Laboratory at Cambridge on solid extracts of yeast. In this Messrs. L. B. WINTER and W. SMITH put forward a new theory of the causation of

diabetes. They state that the sugar present in normal blood is an unstable form, which they call γ -glucose. In diabetic blood they find only stable forms of glucose, and from this they conclude that the pancreatic internal secretion—and probably insulin—act by converting the stable into the unstable glucose, thus rendering it suitable for metabolism. They also suggest that yeast may act in this way, for injections into rabbits lowered the blood-sugar and put rabbits into convulsions. These experiments raised the hopes of clinicians, who could see large quantities of this "yeast insulin" being available for clinical trial in the near future. The investigators themselves were guarded in their statements, and much work remains to be done before definite conclusions can be reached. Substances, such as peptone and certain proteins, all of which are contained in yeast, are known to lower the blood-sugar on injection.

With regard to the theory of stable blood-sugar in diabetes it is true that glucose, containing as it does asymmetric carbon atoms, can exist in many isomeric forms. TANRET, who discovered two distinct forms possessing different rotatory powers, showed that when α -glucose was dissolved in water, its rotatory power fell to a constant figure, and that β -glucose, when treated similarly, gave a rising rotatory power. He also found a third substance, which he called γ -glucose, of constant rotatory power. But as knowledge grew it turned out that in solution α - and β -glucose changed into each other, until a definite point of equilibrium was reached, and that γ -glucose was nothing more nor less than a mixture of these two substances in equilibrium. This fact, now admitted by TANRET himself, is difficult to reconcile with the new theory of diabetes. The constant change in solution of carbohydrates is a beautiful example of the adaptation of organic compounds to the use of the living organism. Enzymes are extraordinarily specific with regard to their action on these carbohydrate isomers. One enzyme will only act on β -glucose, and, but for this process of mutarotation, no carbohydrate metabolism would be possible. If only the α form is supplied, this goes into solution and at once dissociates into β -glucose, until a definite equilibrium point is reached between the two bodies. The enzymes then remove some of the metabolisable compound, with the result that the equilibrium is upset; more of the α form dissociates to the β compound, which in turn is removed. Thus the process goes on until all has been metabolised. No enzyme is necessary to convert α - into β -glucose, for nature has already provided a spontaneous means in this process of mutarotation. Had Prof. LOWRY, speaking at the recent Pasteur evening of the Royal Society of Medicine, overlooked this phenomenon when he condemned ALICE to a glycosuric death when she entered the realm beyond the looking-glass? For he pointed out that her enzymes being reversed could only act on *lævo*-compounds. But even if the looking-glass did not also reverse the carbohydrate molecules—and why should it not?—mutarotation must have saved ALICE from becoming diabetic.

On p. 715 of our present issue Dr. H. F. MOORE gives a useful conspectus of the views at present current as to the physiological effects which insulin has on the body. It has now been placed beyond doubt that insulin reduces the blood-sugar; unless, indeed, its administration is controlled the reduction may go so far as to endanger the well-being and even the life of the animal. In the diabetic, coincident with the reduction of the hyperglycæmia, there is a reduction of the formation of acetone and other

¹ Brit. Med. Jour., Jan. 6th, 1923.

disorderly products of metabolism. It is easy to see that in insulin the practitioner may have a powerful drug with which to control diabetes. The cost of the preparation is high, but progress is being made in perfecting the preparation, and it may confidently be stated that in the near future a supply of potent insulin will be on the market for general use. But the scientific side of the investigation should not be forgotten. We have no certain knowledge as to what happens in the body under the influence of insulin. Blood-sugar is reduced and the irregular metabolism of fat is corrected, but we do not know what becomes of the sugar. It is often stated that the sugar is oxidised, but there is no unequivocal evidence in support thereof. The statement probably originates from the belief, long current among physiologists, that diabetes is a disease in which the body is unable, more or less, to oxidise glucose, and that the degree of diabetes is proportional to this disability. This statement again is not based upon perfectly satisfactory evidence; or rather, the evidence available is susceptible of other interpretations. It is known that the liver of diabetic patients is unable to store glucose, and it is possible that the principal effect of insulin lies in its power of restoring this capacity. There is another and wider aspect of the question. Enthusiasm for a new and valuable remedy for diabetes must not lead to any slackening of the search for the causation of the disease. It is possible to produce an artificial diabetes in animals by partial or total excision of the pancreas, and definite lesions of this organ have been demonstrated in autopsies in diabetic patients. Further, the metabolism of sugar may undoubtedly be controlled by an extract of pancreas. Nevertheless, it is by no means certain that diabetes is invariably a disease of the pancreas. It must be admitted that in a large proportion of patients dying from diabetes no lesions of the islets of Langerhans can be discovered, though, taking into consideration the fact that diabetes is not an acute disease, their presence might well be expected were the pancreas the organ essentially at fault. There is a gap between the results obtained by what is crude experiment and the accumulated post-mortem observations on cases dead of the disease. The morbid processes are evidently much more subtle than is generally understood, and until the experimental results can be fitted logically into the pathological picture the essential pathology of the disease will remain a mystery.

ROYAL PORTSMOUTH HOSPITAL.—The report for 1922, presented at the annual meeting of subscribers held at the Town Hall on March 22nd, stated that as the result of the efforts of the Southsea Carnival and Mayor's Charities Committees the sum of £8000 had been raised. The ordinary income amounted to £15,982 10s. 8d. and expenditure to £20,071 13s. 2d., leaving a deficit of £4089 2s. 6d. The sum of £939 9s. was received from surplus funds of approved societies. The Voluntary Hospitals Commission granted £1965. A large proportion of the beds is devoted to surgical work; the applications for surgical treatment far outnumber those for medical relief. The work in the out-patients' department has steadily progressed. The department is increasingly used as a consultative clinic. The venereal diseases department has again to record a decreased number of new patients and decreased attendances of both male and female patients. The incidence of venereal disease in Portsmouth appears to be diminishing; for this department 3480 pathological examinations were made; for the general work of the hospital there were 1185 examinations. The average cost per bed occupied was £111 7s. 5d., and the average cost of each in-patient per week was £2 2s. 8½d. The borough treasurer, who had investigated the hospital expenditure with a view of ascertaining whether the funds were dispensed economically or extravagantly, reported that the cost compared very favourably with that at other similar hospitals, and that the developments during recent years had brought this hospital to a high standard of efficiency.

Annotations.

"Ne quid nimis."

SIR JAMES DEWAR.

BY the death of Sir James Dewar, F.R.S., Director of the Davy-Faraday Research Laboratory, at the age of 81, the world of chemistry and of physics loses one of its most ingenious experimenters. At the time of his death he was both professor of experimental philosophy at Cambridge and professor of chemistry at the Royal Institution, two posts which he had held for very nearly fifty years. It was at the latter institution that Sir James Dewar did the experimental work which was to bring him fame, and the work of a public nature in connexion with the famous lectures given there must have made him known to thousands of scientific people. The Friday evening lectures of the Royal Institution have filled a unique place among scientific activities and have been an inspiration to many, especially in their earlier years. It was due in very large measure to the care that the Director took that the lecturer's experiments should not fail, that the high standard set in these lectures was maintained for so many years. A first experience of an evening at the Royal Institution is connected in many minds with the presence of the small, alert, grey-headed figure of the Director, alert to see that all went well.

Dewar's life was practically devoted to experimental work and he tackled many problems necessitating the highest skill for their solution. He is best known for his early works on the liquefaction of the rare gases, and he was very largely responsible for the rapidity with which the list of "permanent gases" was reduced until hydrogen was the last remaining one, and this he had the satisfaction of liquefying. Shortly after this success, the gas helium was discovered and great difficulty was found in reducing it to the liquid state. It was done in the cryogenic laboratory at Leyden under Prof. Kamerlingh Onnes in 1908. The production of liquid air and other gases for commercial purposes was made possible by Dewar's invention of the vacuum vessel, which had quite a long innings in the laboratory before its adoption as a domestic article. His work on the attainment of low vacua by means of charcoal showed that his experimental genius was equally well able to deal with gas problems at either end of the scale of pressure. It is probably true to say that the problems which were solved at the height of Dewar's powers in the Davy-Faraday Laboratory of the Royal Institution, in association with the staff which he gathered about him, could have been tackled nowhere else in the country. Some of his early work had a medical aspect, for he collaborated with Prof. McKendrick on the physiological actions of light; for the rest it was one long record of scientific work of a high order, exhibiting a strong inventiveness throughout. He was the joint inventor of cordite.

He received many honours, including the Rumford, the Davy, and the Copley medals of the Royal Society, the Lavoisier prize of the French Academy, and the Hodgson medal of the Smithsonian Institution.

THE LONDON SCHOOL OF HYGIENE.

THE realisation of the London School of Hygiene comes a stage nearer with the announcement that the King and Queen are expected to lay the foundation-stone of the building some time during the month of May. It is already ten years since the institution of such a school was pressed upon the University of London by its Board of Studies of Hygiene. A recent conference between representatives of the Ministry of Health, the University of London, and the Rockefeller Foundation decided the appointment of a transitional executive committee to arrange for coördination with other interested authorities, to evolve the organisation in detail of the School, and to

develop such detailed plans that construction can be begun. The Rockefeller Foundation having undertaken to provide immediately a sum not exceeding £4000 per annum towards the salary and expenses of a director, a provisional appointment to this office will shortly be made, the occupant to act in an advisory capacity to the transitional executive committee. The official public health service in this country is satisfied of the immense value to the health of the community likely to be achieved by the establishment of a central endowed school of hygiene, which also carries in its hands the future of the London School of Tropical Medicine: for it is unthinkable that the great centre of tropical study, built up on the Mansonian tradition, will not become an integral part of the larger scheme. It has, we believe, already been accepted that the Tropical School is to retain its curriculum and policy under the guidance of its present Board of Studies and School Committee. Departmental division into pathology, helminthology, protozoology, and entomology has already produced great results, and progress has been fostered by continuous research work in the tropics and frequent expeditions. No doubt the clinical side of tropical medicine will be best served by leaving the hospital for tropical diseases where it now is, to function as a post-graduate teaching hospital. For this purpose some improvement in equipment will be necessary, so that clinical teaching may be carried out to the best advantage. The appointment of a liaison officer between the Tropical Hospital and the School of Hygiene will be desirable, until the link between the two becomes so close as to render this superfluous. We have no doubt that both as to the personnel of the Executive Committee and the personality of the temporary director, these great and not necessarily conflicting interests will be considered.

PRACTICAL POINTS IN THE ADMINISTRATION OF ANTIDIPHThERIC SERUM.

COMMENTING on the recent recommendation of the Ministry of Health that 8000 units of antitoxin should be given in every suspected case of diphtheria without waiting for the bacteriological confirmation of the diagnosis, Dr. Claude Ker, in an article which appeared in our columns last week, complains that the high mortality of diphtheria is due to a want of appreciation on the part of the general practitioner of the importance of early injection of antitoxin. This reluctance has been aggravated within the last ten years by the bugbear of anaphylaxis, the risks of which have been greatly exaggerated. Although large initial doses are necessary in severe cases, in mild and moderate attacks a very much smaller dose is required. Dr. Ker makes the valuable suggestion that 2000 or 3000 units should be injected as a routine practice by the practitioner whenever he thinks it necessary to take a swab, and is convinced that such a practice would be followed by a considerable fall in the case-mortality of diphtheria. The intravenous injection of diphtheria antitoxin, on which we publish a note in this issue by Dr. Poul Iversen, of the Blegdams Hospital, Copenhagen, has been practised for many years on the Continent and in the United States, but has never been very popular in this country, although it was recommended more than 20 years ago in THE LANCET by Dr. D. L. Cairns,¹ and two years later by Dr. J. Biernacki and Dr. J. C. Muir.² The reluctance to employ what is theoretically the best method, inasmuch as it enables the antitoxin to be introduced directly into the circulation, is due to a number of causes. In the first place, intravenous injection in small children, who constitute the majority of the severe cases in which this method is specially indicated, is often fraught with considerable difficulty and may require dissection under an anæsthetic, as was done by Biernacki and Muir. It is for this reason that Dr. Ker reserves intravenous therapy in diphtheria for adults and older children, whose veins allow the easy introduction of a needle. Dr. Iversen does not give any

details as to the ages of his patients, but implies that the technique does not present any difficulties. Secondly, a special preparation of antitoxin is required, containing a lower percentage of antiseptic than is usually employed. In the present series 1 per cent. chinolol was used in place of phenol. Thirdly, the possibility of a severe reaction, which occurred in 27 patients, or 7 per cent. of Dr. Iversen's cases, acts as a deterrent. In most of the cases in the present series the symptoms took the form of a rigor lasting from 10 to 30 minutes, during which the pulse was small and the patient blanched. More rarely the rigor was absent and the condition resembled a mild collapse. The symptoms, however, were only transient, and were relieved by the injection of camphor. Anaphylactic symptoms, consisting in a rigor or collapse, profuse urticaria, œdema of the face, and pain in the joints, are especially likely to occur after intravenous injection in cases which have received serum some time before, nor are the symptoms always prevented by a desensitising dose. In view of all these drawbacks it is not surprising that intravenous therapy in diphtheria has not found more supporters. Dr. Iversen, however, writes with such conviction of the superiority of intravenous injection, that we should welcome a record of the experience of those of our readers who have had an opportunity of making similar observations.

THE DICKINSON SCHOLARSHIPS.

A LARGE capital sum, conveyed to trustees under the will of the late Mrs. Conradine Sophia Dickinson, of Bournemouth, has enabled them to institute a number of scholarships in the Manchester Medical School, which are shortly to be awarded for the first time. The Anatomy Scholarship is of the annual value of £25 awarded for one year to the student who distinguishes himself most in the first-year course in anatomy at Manchester University. The Surgery Scholarship of £75 is offered in alternate years to graduates in medicine and surgery of Manchester University, the successful candidate undertaking to carry out some piece of special research approved by the medical board of the infirmary. The Pathology Scholarship of £75 is similarly open to graduates who undertake to work for one year in the pathological laboratory of the University under the direction of the professor of pathology. In addition to these a Research Travelling Scholarship in Medicine, of the value of £300 tenable for one year, is available annually for a distinguished graduate of not more than three years' standing. Candidates are required to submit to the trustees evidence of ability and special knowledge, and may have to undergo a special examination. The Travelling Scholar is required to undertake further study in original work at Paris or another medical school outside the United Kingdom. Applications for any of these scholarships should be made to Mr. F. G. Hazell, Secretary to the Trustees at the Royal Infirmary, Manchester, from whom a copy of the regulations can be obtained.

HOSPITAL ALMONERS.

THE Institute of Hospital Almoners in its annual report just issued pays tribute to the pioneer work of the late Sir Charles Stewart Loch, Tooke Professor of Economic Science and Statistics in King's College, London. It was Loch's intimate study of the working of the out-patient departments of London hospitals which led to the movement for social service in connexion with hospitals and resulted in the first appointment of almoners. The report raises the question whether, at a time when hospital finance is so difficult, it is justifiable to spend money on an almoner's department, and it answers the question by demonstrating how the employment of experienced people will readily recoup a hospital for the additional outlay. The Institute itself sets a high standard in regard to training, and only ten certificates were issued during the year 1922, although now, as always, the demand for trained almoners exceeds the supply.

¹ THE LANCET, Dec. 20th, 1902, p. 1685.

² Ibid., Dec. 24th, 1904, p. 1774.

The Council of the Institute is confident that not enough women are entering upon this work to fill the vacancies that are likely to arise. The course of training begins in the spring of each year, extends over a minimum of two years, and involves an inclusive fee of 40 guineas. The first four months are spent in an office of the Charity Organisation Society in London; the next nine months under the direction of the Ratan Tata Foundation in acquiring a sound basis of theoretical knowledge; a practical year follows under the direction of an almoner at a hospital training centre, two months of which must be spent in visiting other hospitals, and one month in practical work outside the hospital, such as health-visiting or attendance at an infant welfare centre. At the end of this time the almoner should be in a position to form the desired link between the hospital and the home, and to lend such co-operation as may get to the root of the difficulty which has been the cause of the illness or hinders return to health. The difficulty may be economic or temperamental; it may require assistance for the family through a local relief agency, or be only a matter of adjustment after judicious inquiry. The work is strenuous and, as the report suggests, is never likely to be highly paid: but several things point to the fact that such work is appreciated by those in a position to assess it. At the recent session of the Royal Academy of Medicine in Ireland Dr. Ella Webb drew attention to the indispensable character of the almoner's work at a venereal disease clinic. During the past year an almoner has been engaged by the Medical Research Council for special investigation into the records of social work done during the past seven years at St. Thomas's and York Road Lying-in Hospitals; and the Universities of Birmingham, Bristol, Glasgow, Leeds, and Liverpool have undertaken to take a part in the training of almoners for their own areas. It is significant that Sir Napier Burnett has accepted the presidency of the Institute.

LEAD POISONING IN INFANCY.

Dr. L. Emmett Holt, jun., of Baltimore,¹ who records an illustrative case which he observed in the Babies' Hospital, New York, remarks that, though much has been written on lead poisoning in older children, especially in Australia, the condition is very rare in infants. Arlidge in England and Constantin Paul in France, who made extensive studies of the families of workers in lead, found a very high percentage of stillbirths and a very high mortality from convulsions in the first three years of life. The number of mental defectives among the older children was also very large. Only a few undoubted instances of placental transmission of lead have been recorded. Paul admits that in many cases which he classified as congenital the poisoning may have continued after birth, through the mother's milk. Considerable quantities of lead were obtained by Ballard from the milk of a mother suffering from plumbism. A somewhat larger number of reliable reports of acquired lead poisoning in infants have been published. The sources of the lead varied considerably in different cases and consisted of toys, buns, sweets, paint on the mother's face, or ointment on the mother's breast. The prognosis in these cases largely depends upon the success with which the lead can be eliminated from the system. Dr. Holt's case was a female infant, aged 8 months, admitted to hospital for convulsions which had started on the previous day. Examination of the blood showed a moderate anaemia: red cells, 3,800,000; hæmoglobin 67 per cent. As the convulsions did not recur within the next 24 hours the mother was allowed to take the child home. Two days later repeated attacks of convulsions developed and the child was readmitted. Cutaneous tuberculin tests and the Wassermann reaction in the blood were negative. In addition to a moderate degree of anisocytosis and poikilocytosis and many nucleated

red cells, a blood smear showed a remarkably large number of red cells with basophil stippling. This finding suggested the possibility of lead poisoning, and after prolonged search it was found that the mother who was suckling the infant had been applying an ointment, the chief constituent of which was lead acetate, to her breasts for eczema. The child's convalescence was slow, being complicated successively by otitis media, prolonged diarrhoea, and pyelitis, but gradual improvement took place. No means were taken to eliminate the lead from the system, the only treatment being administration of calcium bromide to control the convulsions, which continued at intervals for about a week.

THE ANNUAL MEETING OF THE B.M.A.

ARRANGEMENTS have been completed for the holding of the ninety-first annual meeting of the British Medical Association at Portsmouth from Tuesday, July 24th, to Friday, July 27th, under the presidency of Mr. Charles Plumley Childe, F.R.C.S., senior surgeon to the Royal Portsmouth Hospital. The Presidential Address will be given on Tuesday evening and the annual exhibition of surgical appliances, foods, drugs, and books will be officially opened on the same day. The meetings of the scientific sections will be held on the next three following days. The Sections of Medicine, Surgery, Obstetrics, Pathology, and Neurology are each allotted three days; those of Ophthalmology, Public Health, Children, Laryngology, Radiology, Military Hygiene, and Tuberculosis each meet on two days, while Medical Sociology, Orthopaedics, Venereal Diseases, and Anaesthetics occupy each a single session. The Section of Medicine has chosen for discussion on successive days (1) diabetes; (2) aetiology and treatment of heart disease in early life; (3) chronic bronchitis. Subjects for the other scientific sections have yet to be announced. The annual dinner of the Association will take place in the Town Hall on Thursday at 7.30 p.m. The honorary local general secretary of the gathering is Mr. C. A. Scott Ridout, M.S., "St. Elmo," Clarendon-road, Southsea. The annual representative meeting will, as usual, precede the annual meeting on Friday, July 20th, to commence at 10 a.m., Dr. R. Wallace Henry presiding, and continue on the three following week-days. Saturday, July 28th, will be set apart for excursions to places of interest in the neighbourhood.

DISTINGUISHED ABERDONIANS.

ALTHOUGH one need not take too seriously the ancient saying attributed to an Aberdonian: "Tak awa Aberdeen and sax mile roun and whar would you be"? yet he who has read Mr. McCulloch's list¹ of celebrated graduates of Aberdeen University will acknowledge in all sober truth that in the production of sons of light and learning the northern city has done her full share. In Mr. McCulloch's list we find the following names: Francis Adams, the translator of Hippocrates and at the same time a humble practitioner of medicine in a Deeside village; John Arbuthnot, wit and physician; Alexander Bain, philosopher; James Beattie, poet; John Stuart Blackie; Hector Boece (Boyce or Boethius), the historian; Robert Brown—that prince and pioneer of botanists; James Burnett (Lord Monboddo—evolutionist), John Burton Hill, historian; Sir Andrew Clark; Sir James McKenzie Davidson; Sir Patrick Dun, the Dublin physician; James Matthews Duncan; Hugh Falconer, a great palaeontologist; Archibald Forbes; Sir William Fordyce (John Hunter's contemporary); Simon Fraser (Lord Lovat); Sir David Gill, astronomer; the gifted family of Gregorys; George Skene Keith; William MacGillivray, naturalist; Sir William MacGregor, physician

¹ American Journal of Diseases of Children, March, 1923.

¹ Viri Illustres Universitatum Aberdonensium. Compiled by W. E. McCulloch. Aberdeen: W. and W. Lindsay. 1923. Pp. 176. 3s. 6d.

and colonial administrator: Sir Patrick Manson; David Masson; James Clerk Maxwell (who, however, was merely a professorial bird of passage as far as Aberdeen was concerned); Peter Redfern; Alexander Reid, "the first lecturer on surgery in London"; Sir James Stirling; Augustus Désiré Waller. This is a list of which any university may be proud. We sincerely hope that young graduates of other universities will do as Mr. McCulloch has done, for we count it a sign of health when students of a university nurse the memory of distinguished graduates. We give the author full credit for being moved to compile this list as a labour of love. And yet, a remark he lets drop in his preface leaves us a little uncertain as to whether or not his motives may not have been a little mixed. We rather suspect he means "to down the southron," for it appears that a Cambridge undergraduate had cast aspersions on the ancient university of the north; the list is intended for the education of that undergraduate. But was the Cambridge undergraduate not merely in a playful mood when he challenged Mr. McCulloch?

THE MUSCULARIS MUCOSÆ.

THOSE medical historians who have had the advantage of living after the time of Harvey have frequently expressed astonishment that the complete circulation had remained undiscovered throughout so long a period. From Erasistratus to Fabricius all practical anatomists had been acquainted with the cardiac valvular arrangements and with the directions towards which the separate valves opened; yet the vision was kept from their eyes by virtue of that human truth, that we see as a rule only that for which we are looking, and they spent their energies in the effort to fit the facts to the theories, rather than in altering their ideas in conformity with the facts which they observed. This curious weakness of the human understanding applies to small matters as well as to large, to the microscopic as to the macroscopic. The presence of a certain special tissue with a definite function, such as muscle cells with their contractile powers, should imply of necessity that the tissue is there to exercise its function, and that the organ which contains it is so far contractile. The existence of muscle, for example, in the cerebral arteries ought to have been enough in itself to show that these vessels had vaso-motor properties, as arteries elsewhere, yet this was strenuously denied on purely negative grounds, though voices called in the wilderness never so loudly. Similar things might be said about the vessels of the lung.

There is another situation in which muscle has been known for many years, but no definite function has been assigned to it, nor reasonable explanation given of its presence. We refer to the submucous musculature, the *muscularis mucosæ*, such as is found in the stomach and intestines, and about which Prof. Gösta Forssell, of Stockholm, recently read a very interesting and important paper in the Section of Electro-Therapeutics of the Royal Society of Medicine, which was reported and illustrated in THE LANCET for March 31st. Anatomically, the *muscularis mucosæ* is a well-developed and continuous layer. In the stomach it even shows here and there a tendency to form outer and inner strata running in cross directions. It has a definite and full nerve-supply from the submucous plexus, which is itself a distinct and separate derivative of the myenteric plexus. These facts alone may be said to point strongly to some definite and important rôle which, up to the present, has not been demonstrated. The general idea of medical men concerning the matter is probably what Sir Humphry Rolleston happily expressed when he said, in the discussion, that he had previously regarded the gastro-intestinal mucosa as capable of about the same range of movement as the skin possesses in the act of "gooseflesh." Prof. Forssell has much wider conceptions than this, views of definite action and function that will, without doubt, lead to consider-

able physiological criticism. He holds that the mucous membrane is not mechanically passive, but its folds represent phases of active movement, and it is actively concerned in controlling the rate of flow along the alimentary canal and in the formation of "digestive chambers" of varying form and size, in which the material can be more intimately surrounded by the membrane. This throws on the mucous membrane a much greater responsibility for the success of the digestive processes than has been accorded to it hitherto, and is a view that calls for serious investigation and consideration. The ultimate proof must rest on experiment and direct observation; anatomical preparations are in this respect of little value, but the deductions from experiment and observation must be in accordance with anatomical fact if they are to stand. The relation of muscle cells to the central lacteal of a villus is quite in keeping with an assumed action on this channel, and there seems to be no reason why the whole strand might not also alter the shape and length of the projection; but it might be objected, for instance, if one were considering the valvulæ conniventes or folds of Kerekring, that the method of continuity of their muscular layers with the general basal stratum could only allow of a limited amount of alteration in position. However this may be, the skiagrams shown by Prof. Forssell, especially those of the jejunal loop, are very suggestive arguments for the views he adopts, and it seems to us that he has opened a new phase in the physiological study of all the factors which combine to constitute the processes of digestion.

RECENT WORK ON THE SCHICK TEST.

OBSERVERS on both sides of the Atlantic continue to make fruitful studies of diphtheria in the new light thrown by the Schick test for immunity and the method of producing immunity by toxin-antitoxin mixtures. In a recent report¹ by Surgeon-Commander Sheldon F. Dudley, R.N., he records observations on the distribution of immunity in a school of over 1000 boys and on the changes from susceptibility to immunity which occurred during outbreaks of diphtheria. He also correlates the results of the test with the incidence of cases of diphtheria and of carriers. An epidemic of scarlet fever was in progress at the same time, and he draws some conclusions as to the mode of spread applicable to both diseases. The report indicates the way in which at the present time new light is falling on the more obscure problems in the epidemiology of diphtheria. During the epidemic the finds of "morphological diphtheria bacilli" were divided among 63 cases of membranous diphtheria, 14 of non-membranous sore-throat, and 28 carriers. The Schick test carried out four months after the beginning of the epidemic revealed the fact that among the new boys entering the school at 11 to 13 years of age immunity was present in 55 per cent., and that of 764 boys, who had been at least one term in the school and been exposed to the chances of infection during the height of the epidemic, 86 per cent. gave a negative result to the test—i.e., were immune. Those boys who had been two and a half to four and a half years in the school were immune to the extent of 95 per cent. The observations made confirm the statements of other workers in finding that the Schick test is invariably positive in actual cases of diphtheria, but that in carriers the results are negative. In fact, carriers are generally considered to owe their escape from active disease to this immunity. The production of active immunity to diphtheria is a slow process. Immunising doses of toxin-antitoxin mixtures in a large percentage of those inoculated did not produce immunity (Schick-negative reaction) for eight weeks to three months. In the present series of cases of clinical diphtheria it was shown that the Schick-positive reaction during the attack had been converted into a Schick-negative in

¹ The Schick Test. Diphtheria and Scarlet Fever: A Study in Epidemiology. Medical Research Council, Special Report Series, No. 75.

only 84 per cent. four months after the attack, though later this was found to have risen to 92 per cent.

The interesting question arises, by what exact means a susceptible new boy becomes immunised. At first sight it would seem probable that this change was effected by the boy receiving a slight superficial infection and becoming a temporary carrier, since it is known that many such carriers are often present in epidemics. The difficulty lies in the fact that Schick-positive carriers of virulent bacilli are unknown. Commander Dudley thinks that immunity is developed as the result of the frequent reception and rapid destruction of diphtheria bacilli in numbers insufficient to cause actual clinical disease or to be detected bacteriologically, as in the case of a carrier. He believes that in fact during an outbreak three "epidemics" are in progress simultaneously: (1) of clinical diphtheria, (2) of bacteriological carriers, and (3) an immunising epidemic of subpathogenic natural "inoculations" which are only recognisable by their results. This hypothetical immunising process he expands as a theory of the spread of infection in other diseases also—e.g., scarlet fever. He considers the relation of the reception of the pathogenic agent to that of its destruction is the determining factor in infection. If the reception goes on faster than the destruction, the virus accumulates till present in a sufficient dose to infect. This hypothesis agrees with the much greater danger of infection from proximity of susceptible individuals to the infective cases or the carriers during the night, since the eight or more hours of exposure allow a considerable accumulation of infective material, if the virus received is being destroyed at a relatively low rate. In this connexion the "spacing out" of beds, so successfully practised by J. A. Glover in the case of meningococcus carriers during the war, is dwelt on in some detail as applied to diphtheria, scarlet fever, &c. In the school concerned the distance between the beds was only 1 ft. 9 in., and it is claimed that certain non-pathogenic bacteria—e.g., Hoffmann's bacillus as well as the scarlet fever virus—were spread mainly during the night. This thesis is supported by reference to plans of the bedrooms. A plan showing the distribution of the beds in which cases of diphtheria occurred affords no evidence of spread in the dormitory, but other considerations and the probability of intermediate carriers lead the author to look upon the bedroom as the place where transmission usually occurred. On the other hand, strong evidence is brought forward that the first cases actually contracted their infection in the class-rooms by means of penholders sucked by dangerous carriers and then, during the next lessons, used by the members of another class in the same room. Virulent *B. diphtheriae* were experimentally deposited on a penholder in this way and later, after lying for a fortnight in a cupboard, were cultured and shown to be both viable and virulent. Complete records of epidemics in which carriers are systematically sought for and the Schick test is made and repeated later, together with other epidemiological factors, will no doubt serve to clear up the points which are still at issue. Commander Dudley's report concludes with valuable observations and conclusions on the nature of the Schick "pseudo-reaction."

Characteristic energy has been shown by some public health departments in America and large numbers of children have been tested and the Schick-positive (susceptible) immunised with toxin-antitoxin mixtures (T.A.T.). Moreover, the subsequent histories of the children have been followed up as regards immunity and attacks of diphtheria. In March, 1922, Park reported that among 90,000 children in New York who were known to be Schick-negative (immune), either naturally (57,000) or as the result of immunisation (33,000), 18 cases of diphtheria had occurred, as against 56 cases among 90,000 untreated control children; a rate of morbidity reduced to one-quarter. Dr. John Ceconi now records² the results of about

26,000 Schick tests made in Boston during six months in 1922. Of a series of 20,713 children tested 19,148 came up for examination and the results were "read"; 9983 were found to be Schick-positive (susceptible), and of these 7013 (70 per cent.) received three T.A.T. doses. The results of applying the test again ("re-Schicking") six months later were known in the case of 300 at the date of publication and showed a change from positive to negative in over 95 per cent. What change in immunity would have occurred naturally without inoculation can only be inferred from the general results of the Schick test, but there is no reason to suppose that it would have been considerable. The prevalence of diphtheria bacilli at the period covered appears to have been very low. Examination of swabs from 1663 Schick-positive children yielded 6.2 per cent. of cultures of *B. diphtheriae*, all of which were non-virulent, and 1000 Schick-negative children yielded 5.7 per cent., also all non-virulent. The stimulus to the production of natural immunity by contact does not therefore seem to have been present to any great extent. It is pointed out that the effect of immunisation is not an increase in the number of carriers as some have feared would be the case. In a statistical report on the same date by Dr. Paul Eaton it is stated that the percentage of susceptibles may vary from 15.2 to 72 per cent. in crowded and thinly populated districts respectively. The cause of "pseudo" or "protein" reactions following the Schick test inoculation is not attributed mainly to a sensitiveness to the protein of the bacillus itself, but experiments on this point are stated to be in progress. The work in Boston is being carried out with a staff of eight physicians and seven nurses, and is presumably being continued with equal vigour. The effect of these attempts to prevent diphtheria by immunising the susceptible should be still more apparent in a few years.

THE ACTION OF QUINIDINE ON ACUTE GOITRE.

QUINIDINE, which has recently sprung into prominence on account of its dramatic effects in certain forms of heart disease, seems to have other spheres of usefulness, as a recent paper by Dr. E. Benhamou¹ shows. The case he records is certainly striking. A woman, aged 45, whose mother was rheumatic and father tuberculous, had suffered at the age of 17 from rheumatism of the left knee, lasting for six months. Off and on she had suffered from rheumatic pains, and she had been a little short of breath, although there were no auscultatory signs of disease. The sudden onset of the menopause, a few months before she came under treatment with quinidine, was promptly followed by her first attack of essential, paroxysmal tachycardia, which lasted half an hour. The second attack, which occurred a month later, was a little longer and more distressing. Gradually the intervals between each attack became shorter until they were continuous, and the dyspnoea and cardiac distress were such that she was completely invalided. A goitre, which had lasted for some time, but which had hitherto been small, now began to grow rapidly, pulsating and threatening to suffocate her. On examination she was found to be suffering from severe incessant tachyarrhythmia with asystole; the pulse was very rapid and irregular, the cardiac and liver dullness was increased, the bases of both lungs were congested, the lower limbs were swollen, and there was oliguria with paroxysmal dyspnoea. The pulsation of both goitre and heart was most embarrassing, and the general condition was alarming. The exhibition of digitalis had a beneficial effect on the asystole, diuresis, and respiration, but the tachyarrhythmia with its concomitant discomfort persisted unmodified even after digitalis had been given for eight days. Quinidine sulphate was now given, the total quantity on the first day being 0.6 g. Improvement instantly followed, and by the second day the pulse had fallen to 80 and was more regular. The same dosage was continued, and when it was reduced

² Report of Progress on the Schick Toxin-antitoxin Activities of Boston Health Dept. By John A. Ceconi, M.D. And a Statistical Report on the same by Paul Eaton, M.D. Boston Med. and Surg. Jour., clxxxviii., No. 4, pp. 94-99, Jan. 25th, 1923.

¹ Paris Médical, March 10th, 1923.

to 0.4 g., the pulse-rate began again to rise. After eight days the supply of quinidine ran out, and for the next three days, during which no quinidine was given, there were two attacks of tachycardia. The resumption of the quinidine medication promptly restored the former rhythm. After 25 days it was necessary to give quinidine only every second or third day. The patient was able to return to her usual occupations, and what was still more remarkable than her cardiovascular recovery was the almost complete disappearance of the goitre; it was even smaller than it had been before the menopause. This case is also instructive as showing the differences in the spheres of usefulness of digitalis and quinidine respectively.

PRIMARY CANCER OF THE PLEURA IN HUSBAND AND WIFE.

SYNCHRONOUSLY with the publication of *Acta Medica Scandinavica* for Feb. 22nd, 1923, there has been issued a supplement containing the transactions of the Tenth Northern Congress for Internal Medicine, held in Helsingfors in the summer of 1921. Among the interesting papers in this bulky supplement, there is one by Dr. Arnold Josefson with the above heading. In March, 1911, he was consulted by a man, aged 55, of German extraction, who had suffered for some weeks from dyspnoea. There was a history of gout, but not of syphilis. A pleural effusion on the right side was aspirated thrice in 1911, the fluid being blood-stained. The X rays showed a dense shadow over the lower two-thirds of the right lung. There was no history of cancer in the family. In March, 1912, metastatic tumours were found in the right twelfth rib and in the neighbourhood of the gall-bladder. Some time afterwards metastases were also found in two other ribs, one on the right side and one on the left. Herpes zoster developed on the right side of the chest in May, and death occurred in July, 1912, after an illness of 16 months. In March, 1921, his wife, a Swede, aged 62, complained of shortness of breath. A pleural effusion on the right side was found, and almost two litres of blood-stained fluid were aspirated. Within two months she was dead. The necropsy showed primary cancer of the right pleura with metastases in the great omentum, the peritoneum, and the retroperitoneal lymphatic glands. Dr. Josefson raises the following questions: Did one patient infect the other? Was the cancer caused by one and the same virus? Was the matter merely a coincidence? Could the wife have harboured the virus all these years without being aware of it? Whatever the answers may be, such a case of cancer *à deux* is very remarkable. Whether it is unique, as Dr. Josefson claims, is doubtful, but at any rate the coincidence is sufficiently rare to justify the suspicion that it was purely accidental. Had these cases been an example of contagion, one would have expected the skin rather than the pleura to have been the seat of the primary disease. Dr. Josefson finds it impossible to dismiss the view that there may have been a common, external cause, and he concludes: "Granted that we are going in the wrong direction, would it not be advisable, with the knowledge which I have here emphasised, to proceed on the same radical lines with regard to cancer as to tuberculosis?" Though he knows of no case of the attendants of a patient becoming infected by the latter's cancer, he holds that patients suffering from cancer should be isolated, and that the bedding and dwellings of patients suffering from cancer should be disinfected when they are no longer used by the patient. With regard to his advocacy of isolation, he will assuredly find many dissentients in the foremost ranks of the medical profession.

THE Sixth Silvanus Thompson Memorial Lecture will be delivered by Dr. C. Thurstan Holland at a general meeting of the Röntgen Society to be held on Tuesday, May 1st.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XIV.

THE TREATMENT OF CLUB-FOOT IN THE NEWLY BORN.

THE only type of club-foot which is likely to offer difficulties to the practitioner is talipes equino-varus. The other congenital varieties are easily dealt with. Congenital calcaneus is not accompanied at first with any appreciable weakness of the calf muscles, and its treatment necessitates mere fixation of the foot in the position of equino-varus for about six weeks. If the deformity is not easily overcome by immediate manipulation it can be effected in two or three stages and the recovery is assured as soon as the child can voluntarily plantar flex the ankle. A pure talipes varus is rare and is slightly more obstinate, but the treatment consists in fixing the ankle in eversion. Here again recovery is complete only when the peronei act voluntarily.

Talipes Equino-varus.

Our problem is in connexion with talipes equino-varus, and our difficulties are mainly influenced by its duration and severity, or both. The primary distortion of equino-varus is a dislocation inwards of the anterior part of the foot at the medio-tarsal joint and an inward deviation of the os calcis, with shortening of the calf muscles. The deformity increases from week to week in the untreated case. The scaphoid articulates with the side of the head of the astragalus instead of with its anterior surface; it also lies more towards the under side of the astragalus and thus leaves the head of the astragalus more or less uncovered. The cuneiforms and metatarsals follow the direction of the scaphoid. The cuboid lies somewhat to the inner side of the anterior part of the os calcis. In a certain proportion of cases there is an internal rotation of the tibia and fibula. In the early cases the main obstructions to the reduction of deformity are the plantar fascia and the structures which bind together the os calcis, astragalus, and internal malleolus.

The question is often asked, "When should treatment be commenced?" and the answer varies from "Immediately" to "When the child commences to walk." On this point I desire to be very definite. In my opinion *treatment should commence at once*. Delay adds enormously to our difficulties. When we remember that at the very earliest appearance of the baby a certain displacement of the bones exists, we can understand that every week of growth fixes and increases these bony changes. A great responsibility attaches to the medical man who counsels delay. The blame cannot be thrown upon the midwife, for she invariably calls attention to the defect. To any surgeon of practical experience it is hardly necessary to state that a baby of one day old is an infinitely easier problem than that of a month old, and that after a few months the deformity may require very skilled and somewhat forcible effort. I have never met with a case where treatment has been started in the first week where the deformity could not be completely rectified by manipulation and retention in two months. This, of course, does not mean that the child is cured, for reasons which I will mention later, but the foot in this short space of time can be made mobile so that it can, without effort, be placed in a position of calcaneo-valgus.

Are we able, when we see the case early, to form a reliable opinion as to whether treatment is likely to be easy or difficult? I think we are. Cases which present a heel which is short and inverted and which in addition are accompanied by marked adduction at the mid-tarsal joint are more difficult than those with

a comparatively straight inner border of the foot and a heel less deflected.

Manipulation.

The most appropriate treatment for a very early case of club-foot is that of manipulation and fixation. Division of the tendo Achillis can be avoided. The foot should be manipulated with the primary object of straightening its inner border; in other words, the anterior part of the foot should be abducted at the mid-tarsal joint. This can usually be effected in a few minutes. If it is the left foot the heel and the epiphyses at the ankle-joint should be grasped by the left hand, while manipulation is carried on by the right. When the adduction is overcome the varus deformity should be slowly rectified. This should be done as completely as possible, even to the point of over-correction. When the surgeon is satisfied that there is no resistance to outward displacement he can proceed to overcome the equinus. This he does by gripping the right ankle in the palm of his left hand, which should contain the back of the heel and the lower epiphyses of the tibia and fibula. With the foot in the valgoid position the tendo Achillis is stretched, with the right hand grasping the foot and pushing it upwards. During all these manipulations the endeavour should be to guard the epiphyses, which are easily injured in a baby, but which can always be safely protected. In cases where, in addition to equino-varus, there is a rotation of the tibia and fibula, there should be manipulation of these bones by a method which can best be described as similar to that employed in wringing a cloth—i.e., the left hand grasps the upper half of the leg, twisting it inwards, and the right hand the lower, twisting it outwards. If the tendo Achillis is very tight and the surgeon fears an injury to the epiphyses it may be divided, but in the case of a baby this is rarely required.

Division of the Tendo Achillis.

The division of the tendon is often done in very bungling fashion. The dangerous long tenotomes should be discarded for short ones, which I have often illustrated. The child should be made to lie on his face while the nurse flexes the sound limb out of the way. The position of the tendon can be felt with the handle of the knife and an indentation made with it to its side to denote its position. This is especially helpful in the case of a fat baby. The surgeon holds the foot with the left hand in a dorsiflexed position and enters the knife to the inner side of the tendon at the indentation mark made in the skin. The foot is then slackened while the blade is turned beneath the tendon, then tightened, so that by a short sawing movement the tendon is divided from before backwards. When the tendon has been divided the equinus should be at once corrected. There is no object to be gained by the gradual separation of the divided ends. The fear of non-union is practically groundless. It has only happened to me once.

Fixation.

When the foot is restored to its normal position it can be retained by bandage, adhesive strap, plaster, or appliance. In the case of a baby I prefer adhesive plaster, which is so applied as to keep the foot everted and dorsiflexed. In older children other methods are used. In using adhesive plaster care must be taken not to constrict the muscles.

The adhesive plaster should be used as follows. Apply a long strip of $\frac{1}{2}$ -inch adhesive strapping round the tread of the foot from the outer border over the dorsum and across the sole. The foot is then everted, flexed above right angles, and retained in this position by continuing the plaster to a point above the calf muscles, where it is then taken round the back of the limb just below the knee. If further eversion is required an additional short length of strapping may be applied round the ankle and including the everting piece already in situ. The strapping must be renewed as frequently as it becomes ineffective.

Surgeons will have noted that after successive manipulations knock-knee often occurs as a complication. This is due to the surgeon, who has allowed the internal lateral ligament of the knee to be stretched. To prevent this the knee-joint should be protected by an assistant while the feet are stretched.

We have seen that treatment should be started at once and should be continued until the patient can voluntarily place his foot into eversion and dorsiflexion. The cure is only finally completed when the patient can walk.

The Avoidance of So-called Relapses.

There are three causes of so-called "relapse" in club-foot: (1) Insufficient correction of deformity; (2) erroneous deflection of body-weight on the foot in walking; (3) a slack and lengthened condition of the dorsiflexors and evertors of the foot due to their overstretched and semi-paralysed condition. If the deformity be not sufficiently corrected in the first instance the old condition of things is sure to return, because of the altered shape of bones and other structures, more especially the ligaments. Roughly speaking, the change in bones and ligaments on the convex aspect of the talipes has resulted in an increased surface measurement. Unless this is quite obliterated by treatment the unequal growth goes on until the so-called "recurrence" again taxes our resources.

When the time for walking comes the deformity will either be made worse or perfected by this exercise. If it be made worse it is due to the fact that the superincumbent body-weight is placed too much on the outer side of the tarsus, and that therefore every step the patient takes tends to emphasise the varus. One can see how deleteriously walking would affect such a case. Walking should give the finishing touches to the surgeon's art and should not be allowed until the body-weight at every step tends to flatten the plantar arch.

The effect of lengthened muscles opposed to deformity is very obvious, and when one realises the fact that in every case of club-foot the peronei and dorsi-flexors of the ankle have for months remained in a stretched condition, while the tibials and calf muscles are short and unstretched, it is easy to understand the imperfect recovery where no attention is paid to the strengthening of the weak group of muscles. The dorsi-flexors of the ankle and the peronei, which have for so long remained overstretched, behave to all intents as paralysed muscles would, and gravity decides the issue exactly as it does in the case of an equino-varus due to poliomyelitis. When the patient has arrived at the stage for walking and the deformity is corrected and, most important of all, when he can voluntarily evert and flex his foot, he should be taught to walk. Correct deflection of body-weight on the tarsus must, however, be assured.

If treatment is correctly carried out there is no apparatus required during after-care. The child should walk with an ordinary shoe with a flat heel. The so-called "orthopædic" shoes are a relic of the past. Massage of the peronei and the dorsiflexors should be continued and every device employed to secure voluntary action of these muscles.

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Special Articles.

"INSULIN" AND DIABETES:

THE PRESENT POSITION.

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Dr. F. G. Banting, in November, 1920, conceived the ideas that: (a) since the acinous but not the islet tissue of the pancreas degenerates after ligation of the duct of the organ, advantage might be taken of this fact to prepare an active extract of islet tissue; and (b) trypsinogen or its derivatives destroy or are antagonistic to the internal secretion of the gland.

Experimental Basis.

Prof. J. J. R. Macleod, of the University of Toronto, gave facilities for and direction to the working of these hypotheses by Banting and Best.¹ The experimenters made extracts with Ringer's solution of dogs' pancreas after the acini had degenerated owing to previous ligation of the ducts or after they had been exhausted owing to repeated secretin injections and vagal stimulation below the diaphragm. The intravenous injection of these extracts into dogs rendered diabetic by pancreatectomy resulted in a marked fall in the percentage of sugar in the blood and abolition of glycosuria. The extracts obtained after previous ligation of the pancreatic ducts were the most potent for reduction of blood-sugar and the least toxic. In one dog the normal blood-sugar of 0.090 per cent. became 0.26 per cent. after pancreatectomy, and 3.10 g. of sugar were excreted in the urine during 24 hours; 5 c.cm. of potent pancreatic extract given intravenously resulted in the blood-sugar dropping from 0.26 per cent. to 0.16 per cent. in one hour; from the third hour after the injection the blood-sugar gradually rose again to 0.25 per cent. at the seventh hour when the injection of another 5 c.cm. of extract brought the sugar down to 0.18 per cent. Later injections brought the blood-sugar from 0.43 per cent. to normal, whilst extract of spleen or boiled extract of pancreas were impotent in this respect. Potent extract given per rectum or intravenous injection of extract on which active pancreatic juice was allowed to act were impotent. Extracts of glands in which the acini were not completely degenerated were more or less toxic on injection. The investigators make the following statement:—

"In the course of our experiments we have administered over 75 doses of extract from degenerated pancreatic tissue to ten different diabetic animals. Since the extract has always produced a reduction of the percentage of sugar of the blood and of the sugar excreted in the urine, we feel justified in stating that this extract contains the internal secretion of the pancreas."

The general conclusions from the foregoing experimental work are as follow:—

Intravenous injections of extract from dog's pancreas, removed from seven to ten weeks after ligation of the ducts, invariably exercise a reducing influence upon the percentage of sugar of the blood and the amount of sugar excreted in the urine.

Rectal injections are not effective.

The extent and duration of the reduction varies directly with the amount of extract injected.

Pancreatic juice destroys the active principle of the extract.

That the reducing action is not a dilution phenomenon is indicated by the following facts: (a) hemoglobin estimations before and after administration of extract are identical; (b) injections of large quantities of saline do not affect the blood-sugar; (c) similar quantities of extracts of other tissues do not cause a reduction of blood-sugar.

Extract prepared in neutral saline and kept in cold storage retains its potency for at least seven days.

Boiled extract has no effect on the reduction of blood-sugar.

In November, 1921, Banting and Best² discovered that the foetal calf pancreas of under five months' development did not contain (external) pancreatic juice, but did contain the internal secretion capable of reducing blood-sugar. They give an example of potency as follows: 50 g. of foetal pancreas were macerated in 250 c.cm. saline and filtered; 15 c.cm. of the filtrate were diluted to 250 c.cm.; a 15 c.cm. dose of this solution reduced the blood-sugar of a 10 kg. diabetic dog from 0.4 per cent. to 0.15 per cent. in three hours. It was found at this time that subcutaneous injection resulted in a slower and more prolonged but no less marked hypoglycæmogenic effect. It was also found that 0.7 per cent. tricesol added to the extract did not interfere with its action, but that by filtering through a Berkefeld candle much potency was lost. Alcohol was next tried as an abstractive in the endeavour to procure a sterile extract, and the active principle of the internal secretion was found to be alcohol soluble while the digestive ferments were not. For example, after macerating whole beef pancreas in 95 per cent. alcohol for 12 hours and filtering, the resinous-like residue obtained, after evaporating to dryness, when re-dissolved in saline and injected intravenously in suitable dosage, reduced blood-sugar in a dog from 0.35 to 0.08 per cent. in three hours, and rendered the urine sugar-free. The aid of Prof. Collip, of Edmonton University, was then invoked in order to prepare a protein-free extract and so avoid the depressor and reaction effects of the crude extract: this was accomplished successfully so that the extract could be studied clinically.

By the use of these extracts three *totally* pancreatectomised dogs lived 19, 21, and 70 days respectively. The injection of extract of other organs,³ such as spleen, liver, thymus, muscle, had little or no effect on blood-sugar, and that of thyroid had very little. Finally, an increase of the respiratory quotient almost to unity was observed in totally depancreatized dogs, showing the ability of the organism to utilise sugar after injection of the extract.

The next step was the trial of the extract, as now perfected, in the treatment of human diabetes.⁴ The investigators write:—

"The effects observed in depancreatized animals have been paralleled in man. The fall in blood-sugar occurs, and in two cases, repeatedly examined, a rise in the respiratory quotient indicating carbohydrate utilisation occurs more or less coincidentally with the attainment of a normal blood-sugar level. Patients report a complete relief from the subjective symptoms of the disease. The sugar excretion shows marked decrease, or if dosage be adequate, disappears. Ketouria is abolished, thus confirming a similar observation by Collip in diabetic animals. These results taken together have been such as to leave no doubt that in these extracts we have a therapeutic measure of unquestionable value in the treatment of certain phases of the disease in man. In agreement with observations of other investigators on laboratory animals, it has been found that without careful control severe toxic reactions may be encountered, and this will undoubtedly be a factor in the evaluation of the ultimate therapeutic utility of the method."

They give in this paper several clinical examples, including one boy in whom acidosis was also controlled in addition to glycosuria by treatment with the extract.

Preparation and Standardisation of Extract.

The method of preparation of the first extracts used clinically, devised for removing protein, salts, and lipoids and proteolytic ferments, was described by Collip⁵: fresh pancreas was macerated in an equal volume of 95 per cent. ethyl alcohol for several hours and filtered, two volumes of 95 per cent. alcohol were added to the filtrate, and the mixture was allowed to stand several hours to precipitate the major part of the proteins, filtered, and the filtrate which contained the active principle was evaporated at 10° to 30° C. in vacuo to a small volume. An aqueous extract was then made which was washed in a separatory funnel with ether to remove lipoids and distilled in vacuo to a thick consistence. 80 per cent. alcohol was added, and the whole centrifuged—the top clear layer of alcohol contains the entire active principles

in solution, below this were a flocculent layer of protein, a watery layer of saturated salt solution, and a lowermost layer of salt crystals. The top layer was removed, delivered into several volumes of 95 per cent., or better, of absolute alcohol, and the whole allowed to stand several hours until the active principle precipitated out. The latter was caught on a Buchner funnel, dissolved in distilled water, concentrated by vacuum distillation, filtered through porcelain, tested for sterility and delivered to the clinic. The final product was given hypodermically without any local reaction. Present methods of production are somewhat modified; with improved methods 5 kg. of beef pancreas yield about 200 to 400 units of insulin.

It now became necessary to devise some method of standardisation of the extract in order to regulate dosage. The name "insulin" was given to the extract by its discoverers. The unit of insulin was taken as the amount (in cubic centimeters) of the extract which on subcutaneous injection into normal fasting rabbits of 2 kg. weight caused a lowering of the blood-sugar to 0.045 per cent. (about 50 per cent.) in from one to three hours.⁶ In other communications it was shown that the injection of insulin in diabetic men and dogs raises the respiratory quotient when carbohydrate is fed, showing carbohydrate utilisation, and in diabetic dogs causes fat to be reduced in the liver at the same time that *glycogen accumulates* therein. It also abolishes the acetoneuria in diabetic dogs. Insulin added to the perfusing Locke's solution of excised surviving rabbit heart increases the glucose consumption more than thrice.⁷ If the blood-sugar of normal rabbits falls too low after injection of insulin, characteristic symptoms appear,⁸ such as hyper-excitability, fear, hunger, thirst, and finally clonic convulsions; as a rule, the convulsions appear when the blood-sugar falls to 0.045 per cent. These symptoms are completely abolished in a few minutes by subcutaneous or intravenous glucose injections, and are due to hypoglycæmia.

Macleod, discussing some of the experimental work,⁹ says that the function that is primarily regulated and controlled by the internal secretion of the pancreas is that concerned with the *deposition of glycogen*. The results obtained "seem to suggest that glycogen must be an essential preliminary stage in the utilisation of sugar by the animal body, and that when the pancreatic hormone is absent excess of sugar leads to the mobilisation of large quantities of fat." In discussing the matter he says:—

"In the light of these various types of evidence we feel justified in expressing the belief that it will be possible by administration of pancreatic extract to treat diabetes in man much more satisfactorily than has hitherto been the case. Dietetic control must no doubt remain an important feature of treatment, and will probably be all that is necessary in the earlier stages of the disease, but in the later stages it is hoped that administration of extract will prove of value. What other therapeutic uses the pancreatic extract may have remain as yet undetermined."

Clinical Study in Man.

Insulin has been distributed in Canada, U.S.A., and Great Britain to selected physicians and research workers for accurate investigation and study in the treatment of human diabetes. For example, over 50 cases were tested and observed in Toronto by Banting, Campbell, and Fletcher,¹⁰ and some of them were under treatment continuously for several months; many of them were severe cases.

"On the first or second day of treatment, if sufficient insulin is given, the urine becomes sugar-free, and on the second or third day ketone-free. These patients become conscious of increasing strength before the end of the first week. From a state which may be one of discouragement or of profound mental depression they become cheerful and interested. Hunger is replaced by appetite; the thirst is lessened; oedema, which is common in these cases, disappears. Patients find they are less irritable, and state that they begin to sleep well. The expression improves; the skin becomes less harsh and dry; even the hair becomes softer; in fact, the patient loses that appearance which characterises the diabetic. In ten days a very considerable amount of physical vigour is restored. Some patients have been able

to return to work after a month of treatment. The patient's weight frequently increases, and this can be readily brought about by supplying food in excess of the calorie requirement and increased amounts of insulin."

No case of diabetes was encountered which was not rendered aglycosuric *in spite of a large increase in the total calories*. Similarly, and perhaps more remarkable, the disordered fat-metabolism is restored to normal, inasmuch as insulin treatment results in rapid abolition of acidosis as evidenced by restoration of the normal alkali reserve of the blood, as well as by disappearance of ketone bodies from the urine and the signs and symptoms of this condition. Of ten cases of diabetic coma, six recovered—of the four fatal cases, two were inadequately treated with insulin; one died of pneumonia; one of vaso-motor failure and one of sloughing gangrene of the foot, and both these with sugar- and ketone-free urines and normal blood-sugars. Toxic reactions are rare, and dosage must be controlled by blood-sugar estimations, for, as in animals, also in man, when the blood-sugar percentage falls considerably (to 0.07 per cent.) under the influence of insulin, symptoms appear, such as nervousness, hunger, sense of weakness or fatigue or emotional instability; vaso-motor phenomena such as pallor or flushing and sweating are common. If the blood-sugar falls still lower there is acute distress or even mental disturbances, and, finally, coma, hypotonia, and loss of the deep reflexes. These symptoms can be relieved by carbohydrate administration, such as 50 to 100 c.cm. of orange-juice, or 5 to 25 g. of glucose with orange-juice by mouth or glucose injected intravenously or subcutaneously. One c.cm. of 1 in 1000 adrenalin intramuscularly is useful.

Clinical study of the hypodermic use of insulin in the treatment of diabetes mellitus in man therefore shows that: (a) Glycosuria is abolished; (b) blood-sugar is reduced and maintained at normal levels; (c) ketones disappear from blood and urine and acidosis is abolished; (d) the respiratory quotient shows increase in carbohydrate utilisation; (e) the chief symptoms of diabetes mellitus are relieved and the patients show marked clinical improvement; (f) insulin is practically a specific remedy for diabetic coma. The above results have been confirmed by some private communications to the present writer from reliable workers.

According to Collip⁵ the probable causation of the convulsive state in normal rabbits rendered hypoglycæmic by overdose of insulin is as follows: the glycogen-forming activity of the injected insulin lowers the sugar tension in the blood to such a degree as to jeopardise the oxidation of glucose in the tissues even though a certain amount of sugar still exists in the blood. This theory is supported by the fact that blood and urine of rabbit obtained immediately following the convulsive state shows qualitative and quantitative evidences of acidosis. It is well known that the oxidation of insufficient carbohydrate in the body will give rise to the formation of the so-called ketone bodies.

"These findings are of the greatest interest in that it would appear that while we have in insulin a substance which will correct all the acidotic signs, both in experimental animals rendered diabetic and in patients suffering from diabetes (if the dosage is adequate), it will, nevertheless, produce many of the cardinal symptoms of acidosis when administered to the normal animal in amount sufficient to produce a hypoglycæmia of a marked degree."

Some Properties of Insulin.

Insulin is apparently not a protein; it may be heated on a boiling water-bath for ten minutes in a faintly acid solution (pH 5 to 6) without appreciable reduction in strength, but actual boiling destroys it in three minutes; it is absorbed by kaolin and charcoal; its potency is greatly reduced by Berkefeld filtration.¹¹ Insulin is a white powder, soluble in water (except at pH about 5 or 6), giving a lævo-rotatory solution, and in alcohol (except at its iso-electric point).¹² Perfusion of the pancreas extracts the anti-diabetic substance in sufficient concentration to affect favourably on injection of the

perfusate all the major symptoms of diabetes produced in animals by depancreatisation.¹³

General Considerations.

The product must be given by subcutaneous or intravenous injection, as it is destroyed by trypsin; the dosage varies with the case according to the severity of the disease, the body weight, the diet, and so on. The dosage must be controlled by frequent blood-sugar estimations in each case, until one learns the amount in a given case on a given diet necessary to keep the fasting blood-sugar normal and to abolish glycosuria permanently. The usual plan of dosage is to divide the daily quantity into three equal parts, each part to be given just before the three chief meals. Anything from 6 to 50 rabbit units a day may be required, and some coma cases may require 150 units within 12 hours. Adjustments in doses are often necessary, because a dosage which just controls glycosuria one day may be excessive or inadequate on another.

Insulin is at present on the market in U.S. America, where its price is about 3d. per rabbit unit; the supply is very limited; it is expected that it will be offered by British producers of biological products in the near future; the cost and the frequent subcutaneous injections necessary over a long period of time are certainly disadvantages in the use of insulin. The consensus of opinion is, very definitely, that the insulin treatment of diabetes mellitus will not replace the dietetic treatment but will be an important adjunct thereto—at least in the severer cases. Probably, as heretofore, the less severe cases will not need the product at all, and we will, especially in non-juvenile cases, be able to control the disease by dietetic means alone. Its use, however, in the severe, the juvenile, and coma cases, as well as those complicated by severe acidosis, infection, and gangrene, will assuredly be a very great addition to our present methods of treatment. It is questionable whether insulin should be used at all except by those who can regulate its use by blood-sugar estimations, or in threatened or actual coma or gangrene; even then the danger of hypoglycaemia should be understood, and suitable measures should be ready for dealing with the characteristic symptoms.

In order to prevent improper use and commercial exploitation of insulin, the investigators applied for patents for their product in Canada, U.S.A., and Great Britain, and tendered the patents when granted to the University of Toronto in Canada and the Medical Research Council in Great Britain. I believe both these bodies will licence approved manufacturers to produce insulin under the patents, subject to the producers satisfying these bodies that the insulin produced is of adequate purity and potency. The original investigators receive no monetary return from the sales. In the meantime several laboratories and commercial houses are investigating the problems of producing the substance in large quantity, and certain physicians conducting clinics in large hospitals are studying the use of the product under controlled conditions. Recently Macleod¹⁴ has found that potent insulin preparations can be readily and comparatively inexpensively made from the principal islets of two readily available fish—namely, the angler (*Lophius piscatorius*) and the sculpin (*Myoxocephalus octodecimspinosus* and *scorpin*). In the majority of teleostean fishes the islet tissue is more or less separate from the zymogenous. It is collected into one or several easily recognisable nodules, often encapsulated and associated with relatively little, if any, zymogenous cells. From these islets extremely potent insulin preparations were made, requiring the use of comparatively little alcohol. For example, in one experiment, from 0.68 g. of dried islet tissue of the sculpin more than 12 rabbit units of insulin were obtained; in another case, 0.19 g. of dried islet of lophius gave more than 1 rabbit unit of insulin. It seems, then, that here is a cheaper and more readily available source of insulin than bovine pancreas, but whether this source can be practically used for large scale production is doubtful. If now a

method could be devised for giving the substance by mouth, the ideal in treatment would be attained.

It has for some time been known that pancreatic extracts have anti-diabetic properties on injection,^{15 16} as evidenced by abolition of acidosis, glycosuria, or hyperglycaemia. These extracts have never come into active use owing to uncertainty of action, and toxicity due to the contained ferments and proteins on injection. The literature contains many similar claims for pancreatic extracts given by mouth; in all such cases, however, the effects were too uncertain to be of much use clinically; the beneficent effects occasionally observed may be genuine, and if so encourage one to hope that a way may be yet found for administering insulin orally. Efficiency claims must, however, be substantiated by blood-sugar estimations which, in the majority of instances, were not done in these cases. What the Toronto workers have done is to isolate the active internal secretion of the pancreas from proteins, salts, lipoids, and external pancreatic ferments, so that its physiological effects could be accurately and scientifically studied and used, for the first time with success, in the treatment of diabetes mellitus.

My personal experience with insulin in the treatment of diabetes mellitus is brief and confined only to two cases, owing to the difficulty of obtaining the substance. In one case, an elderly man with gangrene of the foot, 25 units of insulin subcutaneously reduced the fasting blood-sugar (revised Folin and Wu method) from 0.181 to 0.070 per cent. in 2 hours and 20 minutes, and abolished a moderate glycosuria. In another case, a young woman, subcutaneous injection of 16 units reduced the blood-sugar from 0.216 to 0.117 per cent. in 1½ hours, and abolished a heavy glycosuria. The glycosuria and hyperglycaemia recurred in both cases on cessation of insulin administration, for no more of the product was obtainable at the time.

Bibliography.

1. Banting, F. G., and Best, C. H.: Jour. Lab. and Clin. Med., 1922, vii., 251.
2. Same authors: Communication to Acad. Med., Toronto, Feb. 7th, 1922.
3. Same authors: Jour. Lab. and Clin. Med., 1922, viii., 464.
4. Banting, Best, Collip, Campbell, and Fletcher: Canadian Med. Assn. Jour., 1922, xii., 141.
5. Collip, J. B.: Trans. Royal Soc., Canada, 1922, xvi., third series. Proceedings Amer. Soc. Biological Chemists, Toronto, Dec. 27th-29th, 1922.
6. Macleod, J. J. R.: Brit. Med. Jour., Nov. 4th, 1922.
7. Hepburn, J., and Latchford, J. K.: Amer. Jour. Physiol., 1922, lxi., 177.
8. Banting, Best, Collip, Macleod, and Boble: Amer. Jour. Physiol., 1922, lxi., 162.
9. Macleod: Canadian Med. Assn. Jour., 1922, xii., 423.
10. Banting, Campbell, and Fletcher: Brit. Med. Jour., Jan. 6th, 1923.
11. Best and Macleod: Proceedings Amer. Soc. Biological Chemists, Toronto, Dec. 27th-29th, 1922.
12. Doisy, Somogyi, and Shaffer: Ibid.
13. Clough, Stokes, Gibbs, Stone, and Murlin: Ibid.
14. Macleod: Jour. Metabolic Res., 1922, ii., 149.
15. Zuelzer et al.: Deutsch. Med. Woch., 1908, xxxii., 1380.
16. Kleiner, I. S.: Jour. Biological Chemistry, 1919, xl., 153.
17. Allen, F. M.: Jour. Metabolic Res., 1922, ii., 125.

CRIMINAL RESPONSIBILITY.

REPORT BY A COMMITTEE OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE Medico-Psychological Association of Great Britain and Ireland has submitted a report, drawn up by a special committee on criminal responsibility, to Lord Justice Atkin's Committee, who are considering whether any changes should be made in the existing law, practice, and procedure relating to criminal trials in which the plea of insanity as a defence is raised.

The medical profession, the report runs, are equally concerned with the legal profession and the public generally to ensure that the defence of insanity is not abused; they feel, however, that the law as at present interpreted is unsatisfactory, and does not always permit the best and fullest evidence of a prisoner's mental condition to be laid before the Court and Jury.

The M'Naughton Rules.

The Rules in M'Naughton's case have for many years been the subject of cogent criticism, both by medical men and by jurists.¹ That they have nevertheless retained their place in law to the present time has probably been due to (1) the failure to propound an acceptable alternative; (2) the fact that on numerous occasions individual judges have disregarded and declined to act on them; and (3) the knowledge, shared by judges and juries alike, that although a prisoner may be found guilty and sentenced, his case will be carefully reconsidered by experts appointed by the Secretary of State, in accordance with the Criminal Lunatics Act, 1884, and action will be taken accordingly, notwithstanding the finding of the Court.

As regards the Rules themselves, the report proceeds, we are aware that the Committee of this Association appointed to consider the matter in 1896 reported that they were unable at that time to make any suggestions for amending the law; but while fully conscious of the difficulty of the problem, we cannot agree that it is insoluble. We think that changes can be devised, which, without doing any violence to legal principles, would bring the law into closer accord with modern medical knowledge and requirements.

Criticism of Particular Rules.

We desire in the first place to offer some criticism of the particular Rules.

The Answers to Questions 2 and 3.—We take particular exception to the precise tests of responsibility laid down in the following words: "To establish a defence on the ground of insanity, it must be clearly proved that, at the time of the committing of the act, the party accused was labouring under such a defect of reason from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong." Insanity is admittedly incapable of precise definition. The definition of a lunatic in the Lunacy Act, 1890, as "an idiot or person of unsound mind," although open to criticism, connotes defect or derangement of mind, and so may be accepted as a rough and ready criterion. Whatever may be the exact words used to describe the mental state of a person accused of crime, the law is only concerned to know whether it is a condition that negatives the existence of *mens rea*.

The legal principle involved creates a difficulty which is inherent in the problem of the criminal responsibility of the insane, and would have to be faced even if the M'Naughton Rules were abrogated. For these Rules are not wrong in holding that irresponsibility is only an inference that may or may not be drawn from insanity; where they err is in attempting to define precisely the conditions under which the inference is legitimate. They identify responsibility with knowing and reasoning, whereas any medical man with experience of the insane must know of many persons as to whose insanity (and irresponsibility) there can be no possible doubt, who have realised the nature and quality of their act, have known that it was contrary to the law, human and divine, and have shown remarkable cleverness in carrying out their object.

The Answers to Questions 1 and 4.—These may be dealt with together, as they both presume a condition of insane delusion in respect of one or more subjects or persons, or as to existing facts in persons who, it is suggested, are not in other respects insane. We submit that these answers are based on distinctions which, in the light of the present knowledge of mental disease, are out of date. In our view all insane delusions are indicative and symptomatic of general unsoundness of mind. The evidence of their existence will be most material in assisting the jury to decide whether the prisoner is in fact insane, and whether in view of his insanity he ought or ought not to be held answerable in law for his act.

The Answer to Question 5.—This answer relates only to the admissibility of the evidence of a medical man conversant with the "disease of insanity," who never saw the prisoner previously to the trial, but who was present during the whole

trial and the examination of all the witnesses. The value of the opinion of such an expert depends on its intrinsic worth.

Presentation of the Medical View.

We desire, however, to make it clear that in our opinion the real objection to the M'Naughton Rules involves something more radical than criticism of the terms in which they have been framed.

1. Even a slender acquaintance with the details of criminal cases in which medical evidence has seemed to fail to give the guidance to the Court that it was intended to provide, reveals the fact that some definite change in the medical view as to what constitutes insanity has occurred since 1843, when, it must be assumed, the judges framed the M'Naughton Rules in accordance with what they were advised was the generally accepted medical view as to the nature of insanity. Doubtless it was thought that medical men would find no serious practical difficulty in answering the supposed questions. Such an accommodation is now impossible, because it implies a conception of unsoundness of mind that is obsolete. Unsoundness of mind is no longer regarded as in essence a disorder of the intellectual or cognitive faculties. The modern view is that it is something much more profoundly related to the whole organism—a morbid change in the emotional and instinctive activities, with or without intellectual derangement. Long before a patient manifests delusions or other signs of obvious insanity he may suffer from purely subjective symptoms, which are now recognised to be no less valid and of no less importance in the clinical picture of what constitutes unsoundness of mind than the more palpable and manifest signs of the fully developed disorder, which may take the form of delusions, mania, melancholia, or dementia.

The practical bearing of this is twofold: first, it shows how it has come about that present-day medical witnesses find a real difficulty in satisfying the Court when pressed to give a categorical Yes or No to the M'Naughton questions as framed; and second, it shows the impracticability of attempting to frame any other formula. On this basis, therefore, it is thought to be a reasonable proposition to say, Let the facts as to insanity be put before the Court unhampered by any formula. Elucidation of all the relevant facts, including such conditions of defective control as occasion epilepsy, impulses, obsessions, hysterical states, drug addiction, and alcoholism in their bearing upon an alleged crime, would, in many cases, be necessary, and medical witnesses experienced in the care and treatment of the insane could give assistance to the Court in that direction. A jury, upon the facts so presented, with such guidance as the judge might feel it necessary to give, should have no insuperable difficulty in reaching a correct conclusion.

2. In our view the Law should be framed so as to allow the medical witness alleging insanity to make it clear that the facts observed by himself, supplemented by other evidence before the Court, form in his mind a coherent clinical picture of mental disorder; and he should be in a position to state that the prisoner's criminal act is symptomatic of, or at least consistent with, such a condition. His evidence should enable a jury to find that, even if there should be no apparent logical connexion between the prisoner's mental derangement and his criminal act, it is reasonable to conclude that both form part of his mental unsoundness, and it is important that that evidence should be placed before them as fully as possible. According to the present practice, experts on this question are subject to restrictions which are not imposed on experts on other matters. There does not appear to be any sufficient reason why a medical man should not be allowed to state his grounds for arriving at an opinion in his own way, subject always to the fullest cross-examination by the other side and by the Court.

3. We see no reason why a medical witness who has not examined the prisoner should not be asked "hypothetical" questions.

Abandonment of a Legal Criterion.

It may be objected to the foregoing observations that they imply the abandonment of a legal criterion of responsibility, and that such a criterion is indispensable. In this connexion it may be useful to refer to the practice at present prevailing in Scotland.

By Scots Law, as by the Law of England, insanity is a good defence only in so far as it negatives the existence of *mens rea*, and the Rules in M'Naughton's case were for some time quoted with approval by judges as expressing the law of Scotland no less than that of England. (Gibson, 2 Broun 332, and Smith and Campbell, 2 Irvine 1—per Hope, Lord Justice-Clerk.) But they do not now appear to be considered in Scotland. The present state of Scots Law in regard to insanity as a plea or defence is thus expressed by Lord Duncannan, Lord Justice-General, in *H.M. Advocate v. Brown* (1907 S.C. (J) 67 at p. 76):—

"In one sense no one can say what insanity is. I do not think if we had all the doctors here who are learned on the subject that any two of them would agree on a definition. It is quite certain that what may be called the scientific view on

¹ The questions put to the 15 judges by the House of Lords after M'Naughton's acquittal were as follows:—

Question 1.—What is the law respecting alleged crimes committed by persons afflicted with insane delusions in respect of one or more particular subjects or persons, as, for instance, where, at the time of the commission of the alleged crime, the accused knew he was acting contrary to law, but did the act complained of with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury or of producing some supposed public benefit?

Question 2.—What are the proper questions to be submitted to the jury when a person, afflicted with insane delusions respecting one or more particular subjects or persons, is charged with the commission of a crime (murder, for instance) and insanity is set up as a defence?

Question 3.—In what terms ought the question to be left to the jury as to the prisoner's state of mind at the time when the act was committed?

Question 4.—If a person under an insane delusion as to existing facts commits an offence in consequence thereof, is he thereby excused?

insanity has greatly altered in recent years, and Courts of Law, which are bound to follow, so far as they can, the discoveries of science and results of experience, have altered their definitions and rules along with the experts. . . . Acts of Parliament cannot deal with scientific opinions, and therefore it is left to juries to come to a common-sense determination on the matter, assisted by the evidence led and any direction which the judge can give."

Reference may also be made to the direction of Lord Moncreiff, Lord Justice-Clerk, in *H.M. Advocate v. Miller* (1874, 3 Coup. 16).

Conclusions.

In accordance with the views expressed above we have come to the following conclusions:—

1. The legal criteria of responsibility expressed in the Rules in *M'Naughton's* case should be abrogated, and the responsibility of a prisoner should be left as a question of fact to be determined by the jury on the merits of the particular case.

2. In every trial in which the prisoner's mental condition is in issue, the Judge should direct the jury to answer the following questions: (a) Did the prisoner commit the act alleged? (b) if he did, was he at the time insane? (c) if he was insane, has it nevertheless been proved to the satisfaction of the jury that his crime was unrelated to his mental disorder?

3. We would further suggest that the present practice of dealing with persons who are found insane upon arraignment is unsatisfactory and might be reconsidered. As the law stands a finding of insanity upon arraignment may result in a man—conceivably unconnected with and innocent of the offence with which he is charged—being sent to a criminal lunatic asylum. Experience shows that it is always best, if possible, to let the prisoner stand his trial and plead. This course does away with his after grievance that he was never convicted of the offence with which he was charged, and that in fact he never was tried for it. In the vast majority of cases there is no reason to doubt that the man did commit the act, but the fact that the crime was never brought home to him, and that, being found insane, he has been ordered to be detained during His Majesty's pleasure, does give him a grievance of which he makes the utmost use, and to which it is difficult to give a satisfactory answer. When a person is found unfit to plead we would suggest that a plea of "Not Guilty" should be recorded by the Court and the trial on the facts allowed to proceed—in his absence if he cannot properly be present in Court, arrangements being made for him to be represented by counsel and solicitor. We presume that to enable this course to be adopted some amendment of the Criminal Lunatics Act, 1800 (39 and 40 Geo. III., c. 94), Sec. 2, would be necessary.

4. We would also suggest that the law be amended to enable the verdict now expressed as *Guilty but insane* to rank as a conviction for the purposes of appeal to the Court of Criminal Appeal.

5. We are of opinion that it would not be practicable to have medical assessors to the Court in cases where insanity is raised as a defence to a criminal charge. We think, however, it might be possible to have a panel of accredited experts appointed, any of whom could be called on by the Court to give evidence, subject to cross-examination by either side, and without any derogation from the right of either side to call its own expert witnesses.

The report, which is signed by Dr. Nathan Raw (Chairman), Dr. R. Worth (Hon. Gen. Sec.), and Prof. G. M. Robertson (President), concludes with the remark: "We do not favour any amendment of the Criminal Lunatics Act, 1884, the provisions of which are both humane and necessary."

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

A New Anæsthetic Gas.

MUCH interest has been excited by a demonstration of the anæsthetic properties of ethylene, carried out in the physiology department of Chicago University. The attention of Dr. A. B. Luckhardt and Mr. J. B. Carter was directed to this gas by the discovery that carnations in Chicago greenhouses showed a most undue tendency to somnolence. The botanical department having identified the ethylene content of the illuminating gas as the chief culprit, the physiological department determined to study its effects on animals. Frogs, mice, rats, rabbits, guinea-pigs, and kittens were all anæsthetised with a mixture of 90 parts C_2H_4 and 10 parts O_2 in one-half the time necessary to anæsthetise the same animals with the

same proportion of nitrous oxide. Experimenting next with the dog they showed that deep anæsthesia could be maintained for as long as 15 minutes, that there was no effect on blood pressure, and that recovery on ceasing to administer the gas was always rapid and complete. Finally, the two experimenters anæsthetised each other and a number of volunteers, their experience being that induction of anæsthesia by this method is not unpleasant and leaves no after-effects beyond temporary ataxia and some feeling of nausea.

"Hygeia."

The contents page of the first number of *Hygeia*, to be published in April, suggests a very readable little journal. Dr. Victor C. Vaughan writes on Pasteur and his work: Dr. Woglom asks, Does Meat Cause Cancer? while Dr. Arthur J. Cramp, who has for years done admirable work in charge of the propaganda department of the American Medical Association, begins a series of articles on patent medicines. Besides several more signed articles there will be 20 pages devoted to short paragraphs under various seductive titles, such as Plain Facts about Health and Disease, Around the Clock with Baby, and Simple Simon and the Doctor. The making of health propaganda attractive to the general public, so that they will be willing to pay for it, and therefore possibly even to read it, is an experiment worth watching.

Sensations for the Credulous.

The leading daily papers have recently given a considerable amount of space to reports from Escanaba, Mich., of a girl who persisted in living, remaining conscious, and desirous of getting up and going for a walk with a temperature of $114^{\circ}F$. The old hot-water bottle trick (for such it eventually proved) can rarely have met with such astounding success in the history of malingering. At the same time it is announced that Dr. Abrams, who by his remarkable technique should be able to tell from a drop of dried blood the nicer shades of the patient's religious faith, has now discovered that his "sphygmobiometer" can detect the presence of water, oil, and minerals, and even their quantity and the depth at which they will be found. If clients are paying to be told on the evidence that they have syphilis or tuberculosis, the claims of the inventor should be given a thorough scrutiny and the results published.

Illicit Alcohol.

The incautious have paid recently a heavy toll through the consumption of illicit alcohol. A full dozen middle Western States have Bills before them for the stricter enforcement of prohibition. In Kansas the proposed legislation would qualify as murder the selling or giving away of "intoxicants that cause death." In Oklahoma this crime is already punished with the murder penalty; in Iowa and Michigan it is to be manslaughter; and in Ohio "second degree" murder.

March 17th.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. E. D. J. O'Malley is placed on the ret'd. list with the rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majors to be Lt.-Cols.: R. N. Hunt, vice Lt.-Col. R. F. Ellery, ret. pay; and Bt. Lt.-Col. E. Ryan to complete estab.

Capt. E. Catford and J. H. Pendered retire, receiving a gratuity, and are granted the rank of Maj.

Capt. D. W. Pailthorpe is ret'd. to the estab.

Temp. Capt. R. Murphy to be Lt.

TERRITORIAL ARMY.

Capt. J. B. Foubister (late R.A.M.C., T.F.) to be Capt.

Capt. H. L. Garson, J. S. Hudson, and J. Paton to be Maj. (prov.).

Capt. L. B. Cane to be Maj.

Capt. G. W. Deeping relinquishes his commn. and is granted the rank of Maj.; and Capt. R. T. Jones relinquishes his commn. and retains the rank of Capt.

Capt. W. P. Croker, R.A.M.C., to be Div. Adjt., 47th (2nd London) Div., T.A., and School of Instruction, vice Capt. J. H. Barry, R.A.M.C. vacated.

INDIAN MEDICAL SERVICE.

Capt. W. D. Keyworth to be Maj.

The King has approved the grading of the following officers, who have been granted permanent commissions since the outbreak of the war as follows: Capts. S. R. Prall and H. Williamson; and Lt. C. A. Kirton.

C. M. Nicol to be Capt. A. L. Watts to be Lt.

Maj. (actg. Lt.-Col.) D. C. V. Fitzgerald relinquishes his actg. rank on ceasing to comd. an Indian Central Hospital.

Capt. Amrita Nath Banerji relinquishes his temp. commn.

Lt.-Col. and Bt. Col. H. B. Fawcus, R.A.M.C., has been appointed Hon. Physician to the King, vice Maj.-Gen. Sir Alfred Blenkinsop (ret.).

Maj. T. J. Crean, R.A.M.C. (ret'd.), died at his residence in Mayfair on March 25th, aged 50.

The death is announced of Inspector General W. H. Lloyd, R.N., on April 2nd, at the age of 87. Inspector General Lloyd, who was honorary surgeon to the King, was the oldest officer of his rank in the Navy.

Obituary.

THOMAS JOSEPH CREAN, V.C., D.S.O.,

F.R.C.S. IREL.,

MAJOR, R.A.M.C. (RETD.).

Major Crean, who died at his residence in Queen-street, Mayfair, on March 25th, in his fiftieth year, was the son of Michael Theobald Crean, a barrister and a member of the Irish Land Commission. Thomas was born in Dublin, and received his early education at Clongowes College, afterwards studying medicine and qualifying L.R.C.P., L.R.C.S. Ireland in 1896. He was assistant master of the National Maternity Hospital in Dublin, went out to South Africa and entered on general practice at Boksburg, Transvaal, and when interrupted by the war in 1899 joined the Imperial Light Horse as a trooper. In 1901 he was appointed surgeon-captain in the regiment and was wounded at Elands-laagte and at Tygerskloof. It was during this latter action that he won the Victoria Cross, the official record stating that "During the action with De Wet at Tygerskloof on Dec. 18th, 1901, the officer continued to attend to the wounded in the firing line, under a heavy fire at only 150 yards range, after he had himself been wounded, and only desisted when he was hit a second time, as it was at first thought, mortally wounded." After the war he took up practice again, this time on the West Coast of Africa. When war broke out in 1914 he rejoined the army as a major in the R.A.M.C., and served with the 1st Cavalry Brigade, being mentioned in despatches and receiving the D.S.O. In 1916 he was appointed officer in command of the 44th Field Ambulance in France. On his return, broken in health but not in spirit, he became medical officer in charge of the hospital at the Royal Enclosure on the Ascot Race-course. In addition to the Victoria Cross his war honours included the Queen's Medal with five clasps and the King's Medal with two clasps. He also held the Royal Humane Society's Medal for saving life at sea and was awarded the Arnott Memorial Gold Medal in 1902. In the same year the Royal College of Surgeons in Ireland conferred upon him the honorary Fellowship. It is not surprising that a man of Crean's stamp should have also gained honours in the football field. He was a fine Rugby forward, a member of the Irish International XV. in 1894-96 and of the English team in South Africa in 1896. He married in 1905, Victoria, daughter of Señor Don Tomas Heredia, of Malaya, by whom he had one son and one daughter. Known always to his friends as "Tommy," Crean's death leaves a gap in the circle that will not be easy to fill. Generosity, discretion, and tact were his, and more important still, invincible cheerfulness and courage.

Correspondence.

"Audi alteram partem."

HERNIA IN GENERAL PRACTICE.

To the Editor of THE LANCET.

SIR,—As a general practitioner I wish to say how useful your articles on Modern Technique in Treatment are to me, and to hope that there will be more of them on the present lines. The article on the Treatment of Oblique Inguinal Hernia in Adults, in your issue of March 24th, is a good example; the young operator who may have seen many such operations is up against a very different proposition when he does his first radical cure. The text-books that generally say "the sac is easily recognisable, isolated, and cleaned . . ." are not much help to him, looking for it and trying not to feel rattled at not finding it at once. I notice that Prof. A. W. Sheen says "*the whole sac must be removed.*" Do not most surgeons leave the blind lower end of the sac, if there is any difficulty in removing it? Another small point, but most important for beginners, in my opinion, is that the external oblique fascia should be separated back from the underlying structures on each side after division, by the finger; the sutures joining Poupart's ligament to the muscle above the canal are then easily passed. My comments are perhaps superfluous, but I make them to emphasise the importance to us general practitioners of detailed information in these articles.

I am, Sir, yours faithfully,

L. P. GIBSON, M.R.C.S., L.R.C.P. Lond.

Cowes, I.W., March 25th, 1923.

* * We thank our correspondent for his generous appreciation. Experience in recognising the hernial sac can readily be obtained by assisting or even watching other people operate. After the cremasteric fascia has been divided, the cord should be pulled up and spread out over the middle finger. When this is done, the bluish white sac, with the convex edge, will be seen shining through the other coverings. It lies in front of the other structures of the cord. Prof. Sheen emphasises the fact that the ligation must occur right up at the neck of the sac, because if a small portion is left a recurrence is certain to take place. No harm may follow from leaving the lower part of the sac, though it is usual to remove it. It is unnecessary to separate the external oblique far back from the underlying structures if the Johns Hopkins operation is carried out. In this the upper margin of the cut external oblique is brought down and sutured, with the lower margins of the internal oblique and transversalis muscles, to the upper surface of Poupart's ligament. The lower border of the external oblique is made to overlap the upper flap. Firm union will then take place between two broad surfaces. This procedure is probably followed by fewer recurrences than happen with any other.—ED. L.

ANNULAR SHADOWS IN THE RADIOGRAM.

To the Editor of THE LANCET.

SIR,—I read with great pleasure the article on the X ray examination of the chest by Dr. Bernard Hudson and Mr. P. G. Sutton in your issue of March 17th, but I quite agree with the views put forward by Dr. C. H. Brodribb in his letter in your following issue on annular shadows in the radiogram. I think it would be impossible that a cavity of sufficient size to be seen in an X ray photograph should give no physical signs, and, moreover, these annular shadows are seen so frequently at one time, and disappear at another, that it is evident they cannot be due to cavitation. I think it more likely that the shadow is due to an annular adhesion produced by a local pleurisy, which would explain the absence of physical signs.

I am, Sir, yours faithfully,

ANDREW TRIMBLE.

Central Tuberculosis Institute, Belfast, March 27th.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR.—I have only recently had the opportunity of reading in your issue of March 10th a letter from Dr. A. H. Croucher, who first applied Mr. Spahlinger's methods in England in 1913. I can claim an earlier association with this treatment, as I first became interested in it by controlling the experimental work. In 1912 I had the opportunity of using the vaccines on a human being. The patient suffered from lymphoma

siderable improvement until the want of serum stopped the treatment. Two of the patients, who were quite well and had resumed work in 1916, died of influenza during the 1918 epidemic, one died of another disease, five have been lost sight of. The remaining 12 patients have all been traced; they have now been at work for seven years, one of them being a bad case of bilateral tuberculosis of the kidneys complicated by tuberculosis of the spine.

In a report during October, 1915, I made this emphatic statement: "As long as a consumptive is

DR. EDMOND LARDY'S CASE OF LUPUS AND SUPPURATING LYMPHOMA TREATED WITH SPAHLINGER REMEDIES.

Condition in 1912.



After two injections.

After four injections.

After 12 injections.

of the neck (right and left sides) which were ulcerated and suppurating: on the manubrium sterni there was an ugly patch of lupus about 3 inches in diameter. The patient had been treated in two hospitals over periods of nine months and four months, but the disease had resisted all ordinary methods of treatment.

A complete recovery was effected after 16 injections of Spahlinger's vaccine. I consider it remarkable that eight tuberculous glands, all suppurating, as well as a large patch of lupus, could be made to disappear with so limited a treatment. Ever since her recovery, in 1912, this patient has lived in very poor and unfavourable conditions. Notwithstanding this, she has remained in perfect health all these years, all that is evident at present being a few scars under her chin. Of the accompanying photographs the first three were taken after two, four, and 12 injections respectively in 1912, and the other two show the patient's condition in 1923.

I was associated in the preliminary note presented to the Academy of Medicine at Paris in 1914 and I have delayed further publications in order to avoid increased demands for remedies which cannot yet be supplied. In view, however, of the present situation, I believe that my testimony may be of some value. After Mr. Spahlinger's return from England in October, 1914, I was able to treat 23 cases with partial sera, ferments, and vaccines. Most of these patients were in an acute or advanced state; other methods having failed to improve their condition, they might certainly have been considered as "incurable." As a result of the laboratory being closed during Mr. Spahlinger's absence in London, 1913-14, no remedies were produced during that period, and the supply of serum became exhausted early in 1915, thus stopping the treatment of 10 advanced cases. The entire vaccine supply became exhausted at the end of 1915.

Of the 23 cases treated by me, three subsequently died from tuberculosis, although they made con-

Condition in 1923.



living, no matter how far gone his case may be, he can be cured with the Spahlinger treatment, without being obliged to go to the mountains." Since that date the amount of clinical evidence over a long period goes to show that this statement was correct, and I consider that if the complete remedy had been available I should probably have saved all of my 23 cases—excepting, of course, those who died from diseases other than tuberculosis. It is important to note that the patients who went through the course of vaccines are alive to-day and carrying on their normal occupations.

I am, Sir, yours faithfully,

EDMOND LARDY.

Bevaix (Neuchâtel), Switzerland, March 21st, 1923.

ALCOHOL AND INSANITY.

To the Editor of THE LANCET.

SIR,—Dr. Stanley Wyard in THE LANCET of March 24th suggests that the reason why the virtual elimination of alcoholism during the war had no appreciable effect on the occurrence of insanity is to be found in the "greatly increased mental stress" which prevailed in that period. This increased mental stress, it would seem, took the place of alcoholism as a detrimental agency, and is thus assumed—for there is no evidence—to have been during the war years the chief factor in the causation of insanity.

This is a remarkable proposition, and I can hardly imagine that it corresponds to common belief or that it will command the "almost universal acceptance" Dr. Wyard anticipates. Most psychiatrists who have had experience in this special field of work—e.g., on pensions boards—seem to have arrived at very modest estimates of the effect of war stress in causing insanity, even in the case of the actual combatants. It would certainly be somewhat curious if this same influence were a factor of such great potency in producing insanity in the civil population.

I am, Sir, yours faithfully,

Broadmoor State Asylum, Crowthorne, W. C. SULLIVAN.
Berks, April 2nd, 1923.

SERUM DOSAGE IN DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—I have read with much interest Dr. C. B. Ker's note on this subject in your issue of March 31st. He commends yet criticises the memorandum of the Ministry of Health. He considers that to administer 8000 units in any case is both safe and efficient, and while admitting that such a dose, or much larger ones, are often necessary, he does not consider 8000 units necessary in mild cases and regards such a minimum dose as likely to lead to waste of money.

I do not think anyone can disagree with his contention that there are cases which do not require such a dose, but unfortunately as a profession we are not all capable of selecting them. If Dr. Ker tells us a given case is mild we can thoroughly rely upon his opinion, for we know it comes from an expert who carefully weighs all the evidence, but can we so rely upon the opinion of those who are not experts? I say from much experience that we cannot do so. I know that it is not always a simple matter for me to tell at once with precision what the severity of the attack is or is going to be, and it must be more difficult for those of less experience; indeed, one knows this to be so. Amongst those who are inexperienced the tendency undoubtedly has been to give too small doses and to give the dose irrespective of the severity of the disease.

If a minimum dose of 8000 units is both safe and efficient and is applied in practice, then a great saving of child life will occur in the community and this will far outweigh in monetary value the added cost for the production of diphtheria antitoxin.

I am, Sir, yours faithfully,

FREDERIC THOMSON.
North-Eastern Hospital, Tottenham, N., March 31st, 1923.

BURIED RADIUM EMANATION TUBES.

To the Editor of THE LANCET.

SIR,—In an annotation on the Treatment by Radium in THE LANCET of March 10th the statement occurs: "But the American recognition of the possibility of burying small, unscreened glass tubes in tumours made possible the deep use of beta rays." Colwell and Russ in their book "Radium and X Rays and the Living Cell," published in 1915, state (p. 78): "Joly¹ and Stevenson² have succeeded in using the emanation when it is sealed in glass tubing so thin that it may be inserted in an ordinary hypodermic needle. Its insertion into growths thus becomes much simplified and the beta rays are largely utilised."

¹ Proc. Royal Dublin Society, May 8th, 1914.

² Brit. Med. Jour., July 4th, 1914.

And at the meeting of the British Medical Association, held in Aberdeen in 1914, the Dublin method was criticised as affording too little screening from beta rays. The point in the Dublin method is not only the utilisation of primary beta rays, but also the employment of a number of sources of these rays, by distributing several capillaries at one time in a tumour in order to obtain as uniform a radiation of a tumour as possible. These fine capillaries containing emanation were first made by Mr. R. J. Moss at the Royal Dublin Society Radium Institute in April, 1914, and similar tubes are now extensively used in America, where the Dublin work is recognised. I have occasionally buried bare capillaries in tumours and left them there, but the usual method in Dublin is to use 6 to 12 serum needles, each containing one of these capillaries and to withdraw them when a sufficient dose has been given. As the wall of the serum needles is only 0.3 mm. thick this is principally a beta ray method of treatment, and was originated in Dublin.—I am, Sir, yours faithfully,

WALTER C. STEVENSON,
Surgeon Orthopaedic and Dr. Steevens' Hospital, Dublin.
Dublin, March 26th, 1923.

THE OPERATIVE TREATMENT OF SEPTIC MENINGITIS.

To the Editor of THE LANCET.

SIR,—In reply to Mr. W. Stuart-Low's letter in your issue of March 31st I can only imagine that he must have misread both my original communication and that of Sir William Milligan. In the former it was clearly stated that Gram-positive diplococci were present in both the cerebro-spinal fluid and in the fluid withdrawn from the subarachnoid space of the posterior fossa. Even Sir William Milligan, keen exponent of the "serous" theory though he be, agrees from this fact that the case was undoubtedly one of "early and genuine septic meningitis." Mr. Stuart-Low gives no definition of his meaning of "serous" meningitis in quoting a mortality for it of 5 per cent., and as Mr. Edward Davis pointed out it would be difficult to correlate this percentage with Mygind's series of 133 fatal cases, in 70 per cent. of which the cerebro-spinal fluid was sterile.

The academic discussion as to the exact delimitation of serous from septic meningitis is, after all, of little import compared with successful means of dealing with cases where operation is decided upon, and if Mr. Stuart-Low's method of positive suction has produced three out of four successful cases it must obviously be of the greatest importance. It will be interesting to compare these results with Mr. G. J. Jenkins's series when it is published.

I am, Sir, yours faithfully,

Eton, March 29th, 1923. HENRY L. MARTYN.

LONDON PANEL COMMITTEE: HOLIDAY LOCUM SCHEME.

To the Editor of THE LANCET.

SIR,—The London Panel Committee in 1922 instituted a scheme whereby the employment of whole-time locum-tenents during the holiday season can be avoided. Under the scheme practitioners can by arranging themselves into groups of not less than five members, all living within a radius of one mile, undertake the care of the practice of one member whilst away on holiday. The working of this scheme in 1922 proved very satisfactory and quite economical. I shall be pleased to send full information as to the scheme to any practitioner, or group of practitioners, in London, who may be interested, and as the holiday season is drawing near I would ask that early application for particulars should be made.

I am, Sir, yours faithfully,

ROBERT J. FARMAN,
Secretary, Panel Committee for the County of London.
Staple House, 51, Chancery-lane, W.C. 2, March 27th.

* * * This excellent scheme was dealt with in a leading article in THE LANCET of May 6th, 1922.—ED. L.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Dangerous Drugs and Poisons Bill.

THE Dangerous Drugs and Poisons (Amendment) Bill was considered by Standing Committee B of the House of Commons on Tuesday, March 27th. Mr. PONSONBY presided.

Mr. BRIDGEMAN (Home Secretary) moved the following amendment to Clause 2 of the Bill:—

"No proceedings for an indictable offence against this Act shall in England or Wales be instituted except by or with the consent of the Attorney-General or by the Director of Public Prosecutions, and no person shall, on conviction for any offence of contravening or failing to comply with any regulation under this Act relating to the keeping of books or the issuing or dispensing of prescriptions containing drugs to which this Act applies, be sentenced to imprisonment without the option of a fine or to pay a fine exceeding fifty pounds, if the court dealing with the case is satisfied that the offence was committed through inadvertence and was not preparatory to or committed in the course of or in connexion with the commission or intended commission of any other offence against this Act."

He explained that the amendment was the first of a series which he proposed to move in order to meet certain objections to the Bill which had been put forward by the medical profession and the Pharmaceutical Society.

The amendment was agreed to.

Mr. BRIDGEMAN moved a further amendment to Clause 2 to provide that where a person convicted of an offence under the Act was a company, the chairman and every director and every officer concerned in the management of the company should be guilty of a like offence unless he proved that the Act constituting the offence took place without his knowledge or consent.

The amendment was agreed to.

On Clause 3 Mr. BRIDGEMAN moved to leave out the words "in actual practice" after "registered medical practitioner" in Subsection (1) of the clause.

Mr. HAYDAY asked why the words were to be left out.

Sir S. RUSSELL-WELLS pointed out that the words "in actual practice" had an extremely technical significance in the medical world. Medical officers of health, for example, were not in actual practice.

Lieut.-Colonel FREMANTLE said that if his hon. friend was taken ill and these words were not taken out of the Bill they would not be able to prescribe for him in order to save his life.

The amendment was agreed to.

Mr. BRIDGEMAN moved a further amendment to Clause 3 as follows:—

"Provided that if a seller is reasonably satisfied that a registered medical practitioner desiring to purchase a poison urgently requires it for the purpose of his profession, but is, by reason of some emergency, unable, before delivery, either to furnish to the seller an order in writing duly signed, or to attend and sign the book, the seller may send the poison to the purchaser to be handed over to him either in exchange for such an order or on an undertaking by the purchaser to furnish such an order to the seller within the 24 hours next following. If any purchaser by whom any such undertaking as aforesaid has been given fails to deliver to the seller a signed order in accordance with the undertaking, or if any person for the purpose of obtaining delivery of any poison under the foregoing proviso makes a statement which is to his knowledge false, he shall be deemed to have procured the commission of an offence under the said Section 17."

The amendment was agreed to.

Mr. BRIDGEMAN moved the following new clause:—

(1) Where any poison to which Section 17 of The Pharmacy Act, 1868, applies is supplied on and in accordance with a written prescription given by a registered medical practitioner under and in accordance with the provisions of the Acts relating to national health insurance, the seller of the poison shall not be required to make any entry in the book in accordance with the requirements of the said section.

(2) The said Section 17 shall have effect as if for the words "labelled with the name of the article and the word poison, and with the name and address of the seller of the poison," there were substituted the words "labelled with the name and address of the seller of the poison, with the word 'poison,' and with the name of the poison, and, in the case of a preparation which contains a poison as one of the ingredients thereof, with such particulars as to the proportion which the poison contained in the preparation bears to the other ingredients as may be prescribed by Order in Council."

He said he understood the medical profession and the chemists were agreed upon the clause.

The clause was read a second time and agreed to.

Colonel FREMANTLE said that as chairman of the medical Members of the House of Commons he wished to say how much obliged they were to the Home Secretary for having met their points in regard to this Bill. Those points had been raised in the public interest and not to further professional interest. He thought it would be recognised by all

those who know the facts that two or three very long-standing difficulties had been removed by this Bill as amended, and at the same time they had helped and not hindered the policy of the Government in dealing with the dangerous drugs traffic.

Mr. SHINWELL said that British seamen touching such ports as Antwerp, Hamburg, or the Chinese or Japanese ports were often offered inducements to carry drugs to this country. The penalties imposed under the Bill were very drastic, and he asked the Home Secretary to give an assurance that notices would be placed in the fore-castle of British merchant vessels so that seamen might know the risks they ran if they engaged in this traffic.

Mr. BRIDGEMAN said that he thought that the matter raised by Mr. Shinwell was one which affected the administration of the Board of Trade, but he would represent to the Board of Trade that something should be done on the lines suggested by the hon. Member. He wished to reciprocate the remarks of Colonel Fremantle and to thank the medical Members of the House and the Pharmaceutical Society who had been good enough to meet him so fairly in this matter. It would be the last thing that he would wish to do to cast any slur or suspicions on those gentlemen, and he was glad that any idea of that kind had been removed. He was confident that the medical profession and the pharmacists would give him the support which would be of extreme value in putting down this horrible traffic.

The Bill passed through committee and was ordered to be reported with amendments to the House.

HOUSE OF LORDS.

TUESDAY, MARCH 27TH.

Certificates for Mentally Infirm Ex-officers.

Lord SANDHURST asked the Government whether it was a fact that ex-officers who were mentally incapacitated and for that reason were drawing disablement pensions were in addition to being examined from time to time by a pensions board required as a condition of payment of each instalment of pension to obtain a certificate of their mental infirmity not only from a magistrate or minister of religion but also at their own expense from a medical practitioner; and whether the requirement might not safely be dispensed with.

The Earl of MALMESBURY (Lord-in-Waiting), who replied on behalf of the Ministry of Pensions, said that the position to which the noble lord had drawn attention arose out of the provisions made under Section 335 of the Lunacy Act, 1890, for overcoming the legal difficulty of obtaining a valid receipt for moneys due to a person incapable of managing his own affairs. Those provisions were made for the protection of the pensioner himself as well as for the protection of the public funds. He believed that no charge for a certificate was ever made by medical officers in charge of approved mental institutions, and so far as he was aware no charge was made by the magistrates or ministers of religion. This procedure could not be departed from in the more serious cases, which were fortunately very rare, and Lord Malmesbury thought that Lord Sandhurst was unduly apprehensive on the point. The vast majority of the more serious cases were in approved institutions. In cases of a milder character it would be generally found possible to dispense with the procedure prescribed by the Lunacy Act and to proceed under the authority of a Treasury Warrant and to pay the pension on a certificate provided by one only of the prescribed attestors, who need not be a medical practitioner. This was a growing practice of the Ministry of Pensions, and it was their intention in the future to act even more fully under that system. Medical boards were held much less frequently than formerly and rarely more than once a year. In regard to the second part of the question, he did not think any medical certificate was required when the pension was paid to the pensioner himself.

While it was not quite relevant to the noble lord's question, Lord Malmesbury said he might be permitted to indicate the comprehensive measures adopted by the Ministry of Pensions in their endeavour to cure or alleviate the condition of those officers and men who unfortunately suffered from mental and nervous diseases due to their war service. Approximately 75,000 officers and men had been pensioned for nervous diseases alone and had been entitled to receive free medical treatment from the Ministry. Most efficacious forms of treatment had been provided on a most adequate scale with gratifying results. The Ministry had instituted courses of training for medical men in one of their neurological hospitals, and hospitals and clinics had been established staffed with neurological specialists sufficient to meet the very great demand for accommodation. The Ministry had now 14 neurological hospitals, besides a large number of clinics for out-patient treatment. Eighteen months ago it was estimated that of the patients treated in several of the

neurological hospitals belonging to the Ministry between 75 and 80 per cent. had obtained employment and no longer required treatment. In one neurological hospital where the more serious cases were accommodated 134 patients were treated during 1922, and of these only 9 had to be certified as insane, whilst 68 were discharged recovered and 12 were transferred to other institutions, some of them for industrial training. An important part of the continuous treatment provided in the Ministry's neurological hospitals consisted of occupational training.

HOUSE OF COMMONS.

TUESDAY, MARCH 27TH.

Veneral Disease.

Mr. BURGESS asked the Minister of Health the number of men and women, respectively, who were treated for venereal disease in hospitals and other places during 1918, 1919, 1920, 1921, and 1922.—Mr. NEVILLE CHAMBERLAIN replied: The following table shows the number of persons dealt with at the treatment centres for venereal disease in England and Wales during the years in question. These numbers include persons who applied for treatment but were found not to be suffering from venereal disease. Separate figures for males and females are not available for 1918 and 1919.

Year.	Males.	Females.	Total.
1918	—	—	58,000
1919	—	—	128,692
1920	103,567	40,367	143,934
1921	114,692	48,808	163,500
1922	114,632	47,684	162,316

Pension Appeals.

Mr. GRUNDY asked the Minister of Pensions whether he was aware that many men who were successful in their appeal to the pensions appeals tribunal did not receive a further award of pension, and that this was due to the man being re-examined by a board on which a deputy commissioner of medical services sat who was a member of the board that previously examined the man and rejected his claim to be suffering from a disability due to war service; and whether, in view of the grave dissatisfaction that existed among ex-Service men that although successful in appeals against the Ministry decisions they did not receive a pension, he would make arrangements for a travelling medical board to work in conjunction with the pensions appeals tribunal, so that they might assess the claimant's degree of disability independent of any local feeling or prejudice that might exist.—Captain CRAIG replied: I assume that the hon. Member's question relates to decisions of the pensions appeal tribunals "setting aside" final awards. As I have before explained in this House, such a decision merely implies that, in the opinion of the tribunal, the disablement of the man has not arrived at a point at which it is unlikely within a reasonable time to get either worse or better, and that therefore the time has not arrived to make the award final. It does not mean that the tribunal consider the assessment to be wrong at the time. It means that the tribunal think it may become wrong later in case of a change in the man's condition, and that they therefore wish to defer a final decision. With regard to the alleged dissatisfaction amongst ex-Service men that although successful in appeals they do not receive compensation from the Ministry, I would point out that it must frequently happen that a board examining a man shortly after the tribunal have set aside his final award find that the man's degree of disablement is precisely the same as when the final award was made and that consequently there is at the time no ground for any further award.

Mr. FREDERICK ROBERTS asked the Minister of Pensions on what basis a final award was given to a man suffering from a disease due to war service; and was he aware that medical opinion agreed that it was not possible at any time to say that a man's condition, as the result of disease, had reached a final and stationary condition.—Major TRYON replied: The principles on which final awards are made are laid down in the War Pensions (Final Awards) Regulations, 1922, and the War Pensions (Final Awards) Amendment Regulations, 1923, but I would refer the hon. Member more particularly to regulation 8. As regards the second part of the question, the hon. Member will see from these regulations that a final award is made in a disease case when, taking a reasonably near view, it has reached a condition in which further material fluctuation is unlikely.

Mr. BARKER asked the Minister of Pensions the number of cases of officers heard before the appeal tribunals during the two years ending Dec. 31st, 1922; the number of cases of non-commissioned officers and the number of cases of privates heard before the appeal tribunals during the same

period; and the number of successful appeals in each rank per cent.—Major TRYON replied: Approximately 1400 appeals by officers, and 70,000 appeals by other ranks were decided by the entitlement tribunal during the period mentioned. The percentage of these appeals allowed were 48 and 26 respectively. The form in which the records of my department are kept do not enable me to give separate figures for non-commissioned officers and privates.

WEDNESDAY, MARCH 28TH.

Death-rate from Cancer.

Major MOLLOY asked the Minister of Health what was the death-rate from cancer in Great Britain at the present time; what was the death-rate from this disease during each of the previous four decades; what proportion of deaths from all causes, other than accident or violence, were due to this scourge; and what financial provision was made by His Majesty's Government towards assisting those engaged in fighting this plague by their endeavours to ascertain its causes and the best means of combating its ravages.—Mr. NEVILLE CHAMBERLAIN replied: The standardised death-rates from cancer in England and Wales in the four decades, 1881-1890, 1891-1900, 1901-1910, and 1911-20, and in the year 1921 were 610, 767, 867, 966, and 1007 per million of the population respectively. In England and Wales the cancer deaths during the above decades represented 3.2, 4.3, 6.1, and 8.0 per cent. of the total deaths from all causes, other than those due to accident and violence. The promotion of cancer research is among the purposes for which an annual subsidy is made by Parliament to the Medical Research Council, and the Council from time to time make grants in aid of investigations which may bear on the incidence, causation, and treatment of cancer. The Council also have in their charge a quantity of radium salt belonging to His Majesty's Government, and with this have organised an investigation into the treatment of cancer by means of radium in ten different hospitals in this country. My hon. friend is, no doubt, aware that an extensive research into the causes of the disease has for some time past been undertaken by the Imperial Cancer Research Fund.

Blind School-children.

Mr. SHORT asked the Minister of Health the number of children of school age who were blind or partially blind.—Mr. NEVILLE CHAMBERLAIN replied: The latest estimates which I have received from local education authorities in England and Wales of the number of children of school age in their areas who are blind or partially blind relate to the year 1920 and give a total of 5800.

The Spahlinger Treatment.

Mr. CECIL WILSON asked the Minister of Health whether his attention had been called to the Spahlinger treatment for tuberculosis; whether his department had made or could make any report in regard to it; and whether the British Red Cross Society had allocated any and, if so, what sum for this treatment.—Mr. NEVILLE CHAMBERLAIN replied: As regards the first two parts of the question, I would refer the hon. Member to the previous answers given on the subject. As regards the last part, I understand that certain negotiations have been taking place between the British Red Cross Society and M. Spahlinger, but so far as I am aware no definite arrangements have yet been concluded.

Pension Appeals.

Mr. PIELOU asked the Minister of Pensions the number of appeals to the assessment appeals tribunal up to Dec. 31st, 1922, showing the number allowed by the tribunal and the number disallowed by the tribunal.—Captain CRAIG replied: Approximately 13,050 appeals against final awards were decided by the tribunal up to Dec. 31st, 1922. Of these, about 62 per cent. had the final award confirmed unaltered; 19 per cent. had the final award confirmed at a higher assessment; and 19 per cent. were set aside by the tribunal.

Mr. PIELOU also asked the Minister of Pensions the figures showing the number of final awards made up to Dec. 31st, 1922, as follows: Final awards of less than 20 per cent., including nil awards, and final awards of more than 20 per cent.—Captain CRAIG replied: The number of awards which have become final awards up to the date mentioned is approximately as follows: Nil and less than 20 per cent. awards, 153,000; awards of 20 per cent. and over, 40,000.

Mr. STEPHENS asked the Attorney-General, if, in view of the complaints with the decisions of the pensions appeal tribunals, he was prepared to appoint a special committee to inquire into the procedure and method of arriving at decisions of those tribunals, such committee to be comprised of representatives of the various ex-Service men's associations, of the trade-unions, and of the Ministry of Pensions, so that it might commend the confidence of the working class.—Colonel GIBBS replied: No complaints have reached me of the procedure of pensions appeal tribunals. The

procedure is regulated by rules made by the Lord Chancellor under the statute. He will at any time be ready to consider any recommendations that may be made for its improvement. The methods are the same as those adopted by all tribunals in this country which have to arrive at conclusions of fact, and it does not appear to me that any inquiry into those methods is necessary. I do not accept the suggestion that there is any general complaint against the decisions. The fact that an unsuccessful appellant expresses dissatisfaction cannot be accepted as evidence that a decision is unjust and the British Legion have, on more than one occasion, indicated the confidence of themselves and those whom they represent in the tribunals.

Entitlement and Assessment Tribunals.

Mr. FREDERICK JOWETT asked the Attorney-General, respecting the pensions appeal tribunals, if he would give the names and state the qualifications of the 12 entitlement and the 18 assessment tribunals.—The qualifications of entitlement tribunals are set out in the schedule to the War Pensions (Administrative Provisions) Act, 1919: (1) Chairman, a barrister or solicitor of not less than seven years' standing; (2) a disabled officer who has retired or been demobilised from His Majesty's Forces during the present war whilst suffering impairment, or a disabled man who has similarly been discharged or demobilised; and (3) a duly qualified medical practitioner.

The War Pensions Act, 1921, Section 4, Subsection 3, proviso B, provides that for assessment tribunals "the constitution of the tribunals shall be modified by the substitution for the legal representative of a second medical practitioner having such qualifications as may be prescribed by regulations made under the schedule to the Act of 1919," and the rules made under the schedule provide "that the medical member to be substituted for the legal representative under Subsection 3, proviso B of the War Pensions Act, 1921, shall be a duly qualified medical practitioner of not less than ten years' standing."

Number and Cost of Pensions in 1922.

Mr. TREVELYAN THOMSON asked the Minister of Pensions the total amount of pensions paid during 1922 to, and the number of parents or relatives, other than widows, in receipt of war pensions on account of loss of friends or relatives during the European war.—Major TRYON replied: The average number of pensions in payment by my department during the year 1922 to dependents, other than widows, but including motherless children, was approximately 385,000. The total expenditure on these awards during the same year was about £9,300,000.

Pensions for Insanity.

Sir EDWIN STOCKTON asked the Minister of Pensions how many cases he had had within each of the last six months in which the medical advisers of the Ministry had declined to accept the mental derangement of the applicants as due in any way to or aggravated by war service; whether he was aware that there was growing dissatisfaction with the official treatment of these cases; and whether he would modify the system of treating these cases so as to satisfy this feeling.—Major TRYON replied: The number of rejected applications for pension for insanity were: During September, 34; October, 16; November, 57; December 34; January, 52; and February, 58. I am satisfied that this type of case receives most sympathetic consideration, and I would point out that, in cases of dissatisfaction with the Ministry's decision, there is a statutory right of appeal to an independent tribunal, by whose decision the Ministry is bound.

THURSDAY, MARCH 29TH.

Dangerous Drugs Regulations.

Major MOLLOY asked the Secretary for the Home Department if the amendment to the regulation, dated Oct. 2nd, 1922, amending Regulation 5 of the principal regulation of the Dangerous Drugs Regulations, dated May 20th, 1921, would be annulled.—Mr. BRIDGEMAN replied: Yes, Sir. I propose to make a regulation revoking No. 1 of the amending regulations made on Oct. 2nd, 1922, under Section 7 of the Act.

Permanent Disablement Pensions.

Mr. SHORT asked the Minister of Pensions the number of permanent disablement pensions granted up to date to officers and men.—Major TRYON replied: The number of final awards and pensions now in payment is about 110,000.

Alternative Pensions.

Mr. SHORT asked the Minister of Pensions the total number of alternative pensions now being paid to disabled officers, disabled men, and widows, respectively.—Major TRYON replied: The approximate numbers of awards of alternative pensions at present in payment are: 300 to officers and nurses; 1800 to other ranks; 2200 to widows of officers; and 30,900 to widows of other ranks.

Technical Services of Fighting Forces.

Lieut.-Colonel FREMANTLE asked the Under-Secretary of State for War if the Government had considered the report of the committee dealing with the coördination of the technical services of the Navy, Army, and Air Force; if so, what action, if any, was proposed as a result; and what opportunity would be given for such proposals to be considered and discussed by the House.—Mr. GWYNNE (Financial Secretary to the War Office) replied: The answer to the first part of the question is in the affirmative, and steps are being taken, particularly by the establishment of inter-departmental technical committees, to carry out the necessary detailed measures of coördination. With regard to the last part of the question, it is not proposed to publish the report of the committee.

Schools for Mental and Physical Defectives.

Mr. SHORT asked the President of the Board of Education the number of special schools provided for children of school age who were mentally and physically defective, and the number of children attending such schools.—Mr. EDWARD WOOD replied: The number of special schools for mentally defective children is 199, and on March 31st, 1922, there were 15,975 children on the registers of those schools. The corresponding figures for physically defective children are 203 and 14,419.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—K. C. Chock, Creighton University, U.S.A.; M. K. El Khadem, Liverpool; M. A. Lawson, Royal Free Hosp.; and M. Mc. W. Lopez, Bristol and Univ. Coll. *Medicine*.—M. A. Lawson, Royal Free Hosp. *Forensic Medicine*.—G. K. Butterworth, St. Mary's Hosp.; M. Hawke, Guy's Hosp.; C. M. John, Madras and Royal Free Hosp.; and M. A. Lawson, Royal Free Hosp. *Midwifery*.—G. K. Butterworth, St. Mary's Hosp.; K. C. Chock, Creighton University, U.S.A.; M. Hawke, Guy's Hosp.; H. Hirst, Manchester; M. A. Lawson, Royal Free Hosp.; and H. M. White, Leeds.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: G. K. Butterworth, K. C. Chock, H. Hirst, M. A. Lawson, and H. M. White.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—

At a recent diet, out of 54 candidates entered the following passed the Final Dental Examination and were granted the diploma L.D.S. R.C.S. Edin:—

Gilbert A. Loots, William Mason, Robert G. Doig, Arthur H. Wynne, Robert P. Anderson, Henry A. Andrew, Frederic L. Jones, Peter B. Laurensen, Henry D. McDonald, Stanley Still, Henry S. Stowe, Bernard Abbott, Elsbury M. Forehand, Claudius A. G. Roose, John MacArthur, John M. Thomson, John H. Millar, Jean M. Keisler, Arthur W. Wallace, Harold Robinson, Alexander Essiman, William A. Sutherland, John Harkness, David S. Middleton, James A. Whitelaw, Stuart L. Melver, and Harold H. Balfe.

The following candidates passed in the subjects of Pathology, Medicine, and Surgery:—

Robert Bell, William Guild, Archibald T. Donaldson, John B. Forgan, Ian D. J. Smith, Henry F. Skinner, Hector G. Robb, Francis Mackenzie, Robert C. Cook, Alexander W. Seaton, and James Barron Cowie.

The following passed in the subjects of Medicine and Surgery: Thomas E. Mathias, Charles J. Coventry, and David R. Paterson.

UNIVERSITY OF ABERDEEN: SPRING GRADUATION.

The spring graduation took place on March 28th. A feature of the graduation was the large number of ex-Service men capped. Practically all the male graduates in medicine had seen active service. In his address at the close of the ceremony, the Vice-Chancellor, Principal Sir George Adam Smith, who presided in the absence of the Chancellor, the Duke of Richmond and Gordon, alluded to these facts as making it a memorable graduation. An interesting coincidence was the capping of father and daughter in the Faculty of Medicine—namely, Ernest St. Clair Henriques, M.B., C.M. (Old Regulations), who graduated M.D., and Stella Grace Alice Henriques. Among the degrees conferred were the following:—

DEGREE OF DOCTOR OF LAWS (LL.D.).

Dr. William Mackie, Fellow and past Vice-President, Edinburgh Geological Society; and Sir George Henry Makins, consulting surgeon, St. Thomas's Hospital and Evelina Hospital for Sick Children, London.

DEGREE OF DOCTOR OF MEDICINE.

George R. McRobert (commendation for thesis), Henry Duguid, Ernest St. Clair Henriques, and Matthew Logg.

DEGREE OF M.B. AND CH.B.

With Second-Class Honours.—*James D. Murray, Louisa B. Park, *Jane E. Riddoch, and *Richard R. Trail.

Ordinary Degree.—Ronald Anderson, Jeannie G. Angus, Joseph W. Balnaves, Jacob M. Bayer, Alexander S. Benzie, Abraham B. Berkowitz, Muriel E. Bruce, Forbes S. Catto, Alex. I. Cheyne, *John H. Clifford, Clement A. Cowie, Alexander Craig, Helena M. Davidson, Robert H. G. H. Denham, Israel M. Dove, James Duncan, Herbert A. Eccles, Jean L. Farquhar, Alexander Findlay, *Robert P. Gammie, Thomas P. Gill, *Wallace J. Gill, Richard O. Girdwood, Ian L. V. L. Gordon, Stella G. A. Henriques, Edward James, William T. B. Joss, Christina F. Kerr, Christina R. Laing, Beatrix B. Law, William M. Ledingham, Solomon Lewin, James P. Lillie, William E. McCulloch, Ian W. MacGregor, David H. MacKenzie, *Joseph M. McKenzie, Christopher D. Macrae, George McD. Mitchell, William R. Mitchell, Gordon G. J. Mutch, *Walter J. Ogilvie, Marjorie I. Outram, Wilson H. G. Park, Alexander W. Paterson, Margaret E. Rankin, Ian M. Rhind, *Johannes de Ridder, Jeanie H. Ritchie, Lawrence D. Robertson, Harry P. Samson, Frederick R. Sleigh, Elizabeth L. L. Smith, Hugh G. T. Smith, Cecil V. Spark, Constance S. Steele, Mary H. Stephen, William H. Stephen, James Strachan, Hilda J. Third (née Badenoch), Dirk Tom, Hugh Trail, Hugh G. Watson, and William W. Wilson.

* Completed Final Medical Professional Examination with distinction.

DIPLOMA IN PUBLIC HEALTH.

Adam Hutton, Victor E. Milne, John I. Moir, and William L. Stephen.

University Prizes.—Fife Jamieson Memorial Gold Medal in Anatomy: Wilfrid Marshall. Keith Gold Medal for Systematic and Clinical Surgery: Alexander Lyall. Shepherd Memorial Gold Medal for "The Principles and Practice of Surgery": Richard R. Trail. Dr. James Anderson Gold Medal and Prize in Clinical Medicine: Alexander Lyall. Matthews Duncan Gold Medal in Obstetrics: William Gunn. The Alexander Ogston Prize in Surgery: Walter J. Ogilvie.

UNIVERSITY OF LIVERPOOL.—At examinations held recently the following candidates were successful:—

FINAL EXAMINATION FOR DEGREES OF M.B. AND CH.B.

Part I., Pathology.—C. P. Allen, A. Ashworth, P. D. Barling, T. Bellis, E. C. Benn, T. A. Clarke, H. A. Cole, R. Cotter, E. A. R. Evans, M. Fisher, F. F. Fuller, G. A. Garrett, M. Godwin, W. J. Griffiths, L. F. Henry, F. C. S. Hinsbeeck, S. Howard, Enid M. Hughes, Bertha H. Irvine, R. C. Jones, E. Miles, D. H. Mills, J. R. Oddy, A. Oserovitz, E. R. S. Owen, P. Strelitz, A. C. Terry-Thompson, J. J. du Toit, and B. J. van de S. de Villiers.

Part II., Forensic Medicine, Toxicology, Public Health.—J. M. Brodrick, G. E. Church, R. Y. Dawbarn, J. C. Drummond, Clara M. V. Gleave, D. C. G. Hanlon, W. F. Jones, T. S. King, W. J. Laird, C. Sharp, and N. Weinberg.

SECOND EXAMINATION FOR DEGREES OF M.B. AND CH.B.

Part A., Anatomy and Physiology.—H. E. Barrow, A. S. A. Brown, R. F. Corlett, D. E. Davies, J. Hatton, H. O. A. Meyer, E. P. Moloney, W. J. Pierce, J. E. Walker, and W. L. Webb.

Part B., Materia Medica, Pharmacy, Pharmacology.—M. M. F. Arthur, D. Cohen, O. Dawood, W. Emden, A. J. Goss, J. Graham, Catherine E. I. Greenshields, F. P. Irvine, Elvey I. Johnstone, D. Katz, Rebecca Katz, B. Kay, B. D. Knoblauch, E. A. Martinez, P. Strelitz, and R. S. Turner.

DIPLOMA IN PUBLIC HEALTH.

Doris M. Cassidy, E. R. Peirce, and G. H. Potter.

DIPLOMA IN TROPICAL MEDICINE.

D. Basu, J. C. Cruickshank (recommended for the Alan H. Milne Medal), Winifred I. Doherty, J. Elsohn, R. N. Raja, and C. F. White.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An extraordinary Comitia was held on March 26th, the President, Sir Humphry Rolleston, being in the chair.—The annual address was delivered by the President. He compared the numbers on the College list at the present time with those of 100 years ago. There were now 368 Fellows instead of 88, and 600 Members instead of 216. The licentiates now number 14,448, and there was one extra licentiate. He then read obituary notices of the ten Fellows who have died during the past year—viz., Dr. Robert Shingleton Smith, Sir Henry Davy, Dr. W. H. R. Rivers, Sir Edward Malins, Dr. Arthur Ransome, Dr. Cornelius Benjamin Fox, Sir James Galloway, Sir Norman Moore, Dr. John James Pringle, and Dr. Norman Dalton.—On the motion of Sir William Church the thanks of the College were given to the President for his address.—Sir Humphry Rolleston then vacated the chair and the College proceeded to the election of president. Sir Humphry Rolleston was re-elected, obtaining 61 votes out of 65.—Communications were received from the clerk to the Privy Council informing the College that the Seventh International Congress on Thalasso-Therapeutics will be held at Venice on April 9th–12th next; and from the Secretary of the Ministry of Health informing the College that the celebrations (in France) of the centenary of the birth of Pasteur will include a conference on leprosy, to be held at Strasbourg on July 28th–31st next.—The College authorised the presentation of an illuminated address to H.R.H. the Prince of Wales, President of St. Bartholomew's Hospital, at the celebration of the 800th anniversary of the foundation of the hospital.—The President then dissolved the Comitia.

Messrs. William Heinemann (Medical Books), Ltd., announce that commencing with Volume IV. (May, 1923), they have undertaken the publication of the *Journal of Neurology and Psychopathology*.

Mr. G. R. Anderson, M.B.E., F.R.C.S. Eng., senior honorary medical officer to the Southport Infirmary, has been placed on the Commission of Peace for the county borough of Southport.

LETHARGIC ENCEPHALITIS IN MANCHESTER.—During the past fortnight four cases of "sleepy sickness," all of which proved fatal, were reported in Manchester, the victims being seamen who had arrived at the Ship Canal docks from foreign ports.

HUNTERIAN SOCIETY.—The last dinner meeting will be held at Simpson's Restaurant, Cheapside, on Monday, April 9th, at 7.30 P.M. After dinner a discussion on Toxæmia of Pregnancy will be introduced by Mr. L. Carnac Rivett, in which Mr. Victor Bonney and Mr. A. Bourne are expected to participate.

RONTGEN SOCIETY.—A general meeting will be held on Tuesday, April 10th, at 8.15 P.M., in the Institution of Electrical Engineers, Savoy-place, Victoria Embankment, London, W.C.2, when Mr. Mortimer A. Codd, F.Ph.S., will read a paper on a New Method of Operating Induction Coils, followed by a demonstration of the apparatus.

THE LATE DR. G. C. PURVIS.—George Carrington Purvis, M.D., B.Sc. Edin., formerly medical officer of health for Grahamstown, died recently in that city. Dr. Purvis was Thomson Scholar and Falconer Fellow at the University of Edinburgh and had devoted much time and attention to the study of tropical diseases and to the ætiology of cancer. His son, who also studied at Edinburgh University, is now the government veterinary surgeon at Eldoret, Kenya.

QUEEN SQUARE HOSPITAL.—Sir Frederick Macmillan presided last week at the annual meeting of governors at the National Hospital for the Paralysed and Epileptic, Queen-square. The report of the board of management showed that, mainly owing to the fall in the cost of supplies and a substantial grant from the Hospital Combined Appeal, the hospital had more than paid its way during 1922. Funds are urgently required for a new out-patient theatre, an enlargement of the electrical department, and some essential improvements to the convalescent home at East Finchley.

SMALL-POX AT NELSON AND CLOWNE.—In the last week in March 7 new cases were reported at Nelson, 5 being members of one household, making a total to date of 37 cases. The health committee have decided to close day schools and Sunday schools for a month, and children are to be prohibited from attending kinemas. Many proposed public entertainments have been postponed. A large extension to the Infectious Diseases Hospital at Catlow has been erected.—The small-pox outbreak in the Clowne district of Derbyshire, which gave signs of abatement as a result of the large number of vaccinations, again shows activity, as last week five more cases were reported, making a total of 85 cases since last summer.

THE DIPLOMA OF PSYCHOLOGICAL MEDICINE.

The details of the first part of the sixth course of lectures and demonstrations for the Diploma in Psychological Medicine have now been announced. The course will commence at the Maudsley Hospital, Denmark Hill, S.E., on May 1st, with a series of eight lectures on the Anatomy of the Nervous System, by Sir Frederick Mott, lately pathologist to the London County Mental Hospitals, who remains to assist the Maudsley Hospital in an advisory capacity. Sir Frederick Mott's lectures will be on Tuesdays at 2.30 P.M. On Thursdays, at 2.30 P.M., commencing on May 3rd, eight lectures will be delivered by Dr. Henry Devine on Psychology; and at the same hour on Fridays, and commencing on May 4th, eight lectures will be delivered on the Physiology of the Nervous System. Practical instruction and demonstrations will accompany each course, and the whole fee for Part I. separately is 10 guineas, the fee for any one series of lectures being 4 guineas. The second part of the course will commence in October, will deal with Symptomatology, Pathology, and Treatment of Mental Disease, and a more detailed syllabus will be published in due course. A composition fee can be paid of 15 guineas for the two parts. All inquiries should be addressed to the Director of the Pathological Laboratory at the Maudsley Hospital, and application forms, when obtained, should be returned with the appropriate remittance to the cashier, London County Council, County Hall, Westminster Bridge, S.E.1. Medical men intending to take the course, who are introduced by the Fellowship of Medicine, can pay their fees and receive their tickets from the Fellowship on application to 1, Wimpole-street, W.

ROYAL NAVY MEDICAL CLUB.—The annual dinner will take place at the Trocadero Restaurant (Balmoral Room), Piccadilly Circus, London, W. 1, on Thursday, April 19th, at 7.30 for 8 P.M. Members who wish to be present are asked to inform the hon. secretary, Royal Navy Medical Club, 68, Victoria-street, S.W. 1, not later than seven clear days before that date.

ROYAL COLLEGE OF SURGEONS OF ENGLAND:
ELECTION TO THE COUNCIL.—Five vacancies now occur on the Council of the College, Sir William Thorburn having died since the issue of the last notice; they will be filled by election on Thursday, July 5th, 1923. The following are the names of the candidates with the date affixed of admission to the Fellowship: Sir H. F. Waterhouse (1890), standing for re-election; Mr. James Berry (1885); Mr. J. H. Fisher (1893); Mr. H. J. Paterson, C.B.E. (1897); Mr. Sampson Handley (1897); Mr. T. P. Legg, C.M.G. (1897); Mr. Victor Bonney (1899); Mr. D. Armour, C.M.G. (1900); Mr. Percy Sargent, C.M.G., D.S.O. (1900); Mr. G. E. Gask, C.M.G., D.S.O. (1901); and Mr. G. Grey Turner (1903).

ABERDEEN DISPENSARY AND VACCINE INSTITUTION.—The annual meeting was held in the Town House, Aberdeen, on March 29th, Lord Provost Meff presiding. The annual report showed that the total number of cases treated in all departments during the year was 5544, compared with 3646 in the previous year. The number of patients treated at their own homes during the year by the general staff of the dispensary was 2344, compared with 1059 in the previous year, while the number of visits paid was 6644, compared with 2461 in 1921. The number of vaccinations performed during the year was 49, an increase of 13. The number of dental operations performed was 176, an increase of 42. The special ear, nose, and throat cases during the year numbered 366. The number of operations carried out during the same period was 103. During the year 76 persons applied for treatment at the ophthalmic department. In the department for the diseases of women 190 patients were treated. 21,735 prescriptions were dispensed. During the year Dr. John Johnston was appointed anaesthetist and Dr. Alex. Brown a district medical officer; Dr. Douglas R. Dugan was also appointed a district medical officer.

OXFORD MEMORIAL TO THE LATE SIR WILLIAM OSLER.—A final meeting of the subscribers to the Memorial Fund was held on March 15th at the University Museum, Oxford, Sir Herbert Warren, President of Magdalen College, presiding. The following proposals were submitted on behalf of the Committee.

1. The purchase of a bronze plaque of Sir William Osler, measuring 32 by 22 inches, a copy of that, by Vernon of Paris, made for the Medical Faculty of Maryland, this plaque to be hung in the University Museum.

2. The establishment of a fund for the foundation of an Osler Memorial Medal in bronze, to be awarded every five years to a graduate of the University of Oxford who has made some distinguished contribution to medical science, learning, or practice. This medal might be a reduced replica of the portrait plaque.

3. The remainder of the sum, together with any sums hereinafter added, to be called the "Osler Travelling Fund" for the propagation or acquisition of medical knowledge or for medical research, this fund to be invested and the interest utilised to assist teachers of the medical faculty to travel for the above purposes. It is estimated that the capital sum remaining for this purpose will be about £1700.

Sir Archibald Garrod stated that these proposals had the entire approval of Lady Osler, as well as of other friends from whom letters had been received; they were supported by Surg.-Major-General Sir Frederick Bradshaw, and adopted nem. con. The Executive Committee, which consists of Sir Herbert Warren (chairman), Sir Archibald Garrod, Sir Charles Sherrington, Prof. Arthur Thomson, Mr. A. P. Dodds-Parker (hon. treasurer), and Prof. J. A. Gunn (hon. secretary), was empowered to take steps to carry the proposals into effect and in particular to negotiate any arrangements with the University which may be found desirable. Any further subscriptions should be sent without delay to Mr. Dodds-Parker, 2, Holywell, Oxford.

ROYAL SUSSEX COUNTY HOSPITAL: REOPENING THE CLOSED WARDS.—A beginning has been made in re-opening the wards of the County Hospital at Brighton, which for financial reasons were closed in October last. On March 27th 20 beds in the detached Jubilee Block were opened for the use of patients who cannot afford nursing home fees and yet are hardly suitable cases for the general wards of the hospital. Patients will be called upon to pay not less than £3 and not more than £4 per week. This sum will not cover the cost, but the John Howard Trustees have agreed to make up any deficiency there may be, as an experiment for two years. The reopening ceremony was performed by the Public Trustee, Mr. O. R. A. Simpkin, who said that the sum of £10,000 left by the late Sir John Howard would not,

on present values, build a nursing or surgical home. The trustees therefore had approached the governors of the County Hospital for co-operation in carrying out the testator's wishes, and it was agreed that the trustees should redecorate and re-equip two wards of the hospital to be named the "John Howard" wards. The chairman of the governors, Mr. R. Ball Dodson, pointed out that these wards for people of moderate means were not in any way to be a rival to existing institutions. Those who occupied them must be able to convince the authorities that they were not in a position to bear the expense of a nursing home and a first-class surgeon.—Four days later, on March 31st, 30 beds in the main building were reopened in accordance with the arrangement with the Ministry of Health, the hospital thus qualifying for the grant of £3950 from the Voluntary Hospitals Commission. Thus 50 beds still remain closed, but it is hoped to reopen these by September.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, April 9th.

WAR: at 4.30 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

Paper:

Squadron-Leader T. F. Rippon, R.A.F.: The Effects of Tropical Climate on Mental and Physical Efficiency.

Tuesday, April 10th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

Paper:

Prof. F. Hobday: The Idiosyncrasy of Animals to Strychnine, Morphine, and Mercury.

Wednesday, April 11th.

SURGERY: SUB-SECTION OF PROCTOLOGY: at 5.30 P.M.

Paper:

Sir Charters Symonds: Nephrostomy for the Relief of Inoperable Recto-vesical Fistula.

Cases

Will be shown by Sir Charles Gordon-Watson, Mr. Lockhart-Mummery, Mr. Hamilton Drummond, Mr. Herbert Brown, and Mr. Donald Armour.

Thursday, April 12th.

NEUROLOGY: at 8.30 P.M.

Paper:

Sir Frederick Mott: Myasthenia Gravis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.

FRIDAY, April 13th.—5 P.M., Museum Demonstrations, Sir Arthur Keith: Madder-stained Specimens illustrating the Process of Bone Growth.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, April 9th.—10 A.M., Mr. MacDonald: Genito-Urinary Dept. 2 P.M., Mr. Addison: Surgical Wards. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Mr. Steadman: Dental Dept. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 2 P.M., Mr. Gibb: Eye Dept.

THURSDAY.—2 P.M., Mr. Bishop Harman: Eye Dept. 3 P.M., Dr. Scott Pinchin: Medical Out-patients. 3 P.M., Mr. Simmonds: Surgical Out-patients.

FRIDAY.—10 A.M., Dr. Drummond Robinson: Gynaecological Operations. 2 P.M., Mr. Banks Davis: Diseases of Throat, Nose, and Ear. 3 P.M., Mr. Simmonds: Surgical Out-patients.

SATURDAY.—9 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 11 A.M., Mr. Maingot: Surgical Pathology.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients and Out-patients, Operations, Special Departments.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, April 12th.—5 P.M., Mr. L. C. Rivett: Toxæmia of Pregnancy.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).

THURSDAY, April 12th.—3.30 P.M., Mr. A. J. Wright: Nasal Catarrh.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, April 10th.—4.15 P.M., Dr. D. E. Core: Some Points in the Differential Diagnosis of Pain.

FRIDAY.—4.15 P.M., Mr. W. R. Douglas and Mr. J. M. W. Morison: The Diagnosis and Surgical Treatment of Lesions of the Large Intestine.

ANCOATS HOSPITAL.

THURSDAY, April 12th.—4.30 P.M., Dr. H. Holmes: Demonstration of Pathological Specimens with Case Histories.

Appointments.

GARDNER, L. P. M., M.B., Ch.B. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for Leith.

GOWERS, DOROTHY W., Assistant Medical Officer for East Ham. SINCLAIR, NEIL F., F.R.C.S. Eng., Surgeon to Out-patients at the Evelina Hospital for Children.

Vacancies.

For further information refer to the advertisement columns.

- All Saints Hospital for Genito-Urinary Diseases, Vauxhall Bridge-road, S.W.—Res. H.S. £200.
 Bath, Winsley Sanatorium.—Asst. Res. M.O. £250.
 Bethlem Hospital, Lambeth-road, S.E.—Res. H.P. £25 per quarter.
 Birmingham and Midland Homœopathic Hospital and Dispensary.—Res. H.S. £175.
 Bristol, Cosham Memorial Hospital, Kingswood.—Res. H.S. £150.
 Bristol Royal Hospital for Sick Children and Women.—Hon. P.
 Burton, Derbyshire, Devonshire Hospital.—Asst. H.P. £150.
 Ceylon Medical College.—Professor of Physiology and Reg. £800.
 Colchester, Essex County Hospital.—H.S. £200.
 Delamere Forest, Cheshire, Crossley Sanatorium.—Asst. M.O. £250.
 Derbyshire Royal Infirmary.—H.S. £200.
 Gloucestershire Royal Infirmary and Eye Institution.—Surg. Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. £50.
 Hull and Sculcoates Dispensary.—M.O. £500.
 Leicester Royal Infirmary.—Hon. Ophth. S.
 Liverpool Open Air Hospital for Children, Leasowe.—Jun. M.O. £250.
 London County Mental Hospital Service.—Seventh Asst. M.O. £440.
 Maidstone, Kent County Mental Hospital.—Asst. M.O. £350.
 Maidstone, Kent County Ophthalmic Hospital.—Res. Surg. O. £750.
 Manchester, Ancoats Hospital.—Radiologist. £300.
 Manchester Royal Infirmary.—Res. Surg. O. Also Asst. Res. Surg. O. £250 and £200 respectively.
 Manchester, St. Mary's Hospitals for Women and Children.—H.S. £50.
 Metropolitan Hospital, Kingsland-road, E.—Cas. O. and Res. Anæsth. £120. Sen. H.P. and H.S. £100. Also Asst. H.P. and H.S.
 Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £500.
 Norwich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £150.
 Rotherham Hospital.—Jun. H.S. £150.
 Royal College of Surgeons of England.—Examiners.
 Royal Naval Dental Service.—Dental Officers.
 Royal Northern Hospital, Holloway, N.—Cas. O. £150. H.P. £100.
 Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £180.
 St. Marylebone Dispensary, 77, Welbeck-street, W.—Hon. P. and Hon. S.
 Stoke-on-Trent, Bucknall Infectious Diseases Hospital.—R.M.O. £500.
 University College Hospital, Gower-street, W.C.—Res. M.O. £150.
 Western Ophthalmic Hospital, Marylebone-road, N.W.—Hon. Asst. S. 100 guineas.
 York, North Riding Mental Hospital, Clifton.—Deputy Supt. £500.
 The Chief Inspector of Factories, Home Office, Whitehall, London, S.W., announces a vacant appointment at Stillington (Durham).

Births, Marriages, and Deaths.

BIRTHS.

- DEAN.—On March 26th, at Spilsby, Lincolnshire, the wife of Dr. L. T. Dean, of a daughter.
 EDWARDS.—On March 23rd, at Felixstowe, the wife of H. Vernon Edwards, M.B., B.Ch., of a son.
 MACKENZIE.—On March 28th, at Camden-terrace, Manningham-lane, Bradford, the wife of Colin Mackenzie, O.B.E., F.R.C.S., of a son.

DEATHS.

- BURY.—On April 3rd, at Cloverley, Chinley, Hannah Louisa, beloved wife of Judson S. Bury, M.D., F.R.C.P., in her seventieth year.
 CREAN.—On March 25th, at Queen-street, Mayfair, Major T. J. Crean, V.C., D.S.O.
 HARPER.—On March 30th, in a nursing home, Charles John Harper, M.R.C.S., L.R.C.P., of Hendon-avenue, Finchley in his 67th year.
 MILLIGAN.—On March 27th, 1923, at Cliftonville, Lytham, William Milligan, M.D., M.Ch., M.A.O., aged 64 years.
 SAUNDERS.—On March 23rd, at College-road, Eastbourne, Henry Saunders, M.A., M.R.C.S.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

RESEARCH IN THE CALCUTTA SCHOOL OF TROPICAL MEDICINE.¹

BY ROBERT KNOWLES, M.R.C.S. ENG.,

MAJOR, I.M.S.; PROFESSOR OF PROTOZOOLOGY IN THE CALCUTTA SCHOOL OF TROPICAL MEDICINE.

[AFTER referring to the difficulties encountered in the inception of the research scheme and the sum of Rs.1,80,000 he had collected to supplement the Rs.9,23,836 obtained by public subscription by Sir Leonard Rogers before he left India, totalling about £100,000 at the then rate of exchange, Major Knowles described the opening of work by four whole-time research workers as a result of action of the Endowment Fund Committee in the autumn of 1920, "in anticipation of sanction" by Government, and the completion of the scheme with its own hospital of 116 beds at a total cost of Rs.17,96,711 early in the following year.] He continued:—

The scheme now includes (1) the School of Tropical Medicine for post-graduate teaching and research; (2) the Institute of Hygiene with the Bengal public health laboratory; (3) six special research laboratories with whole-time workers and assistants, financed by the Indian Tea, Jute, and Mining Associations, the Indian Research Fund Association, and private benefactors; and (4) the Carmichael Hospital for Tropical Diseases, with its own out-patient department, to which cases of the special diseases under investigation in the research laboratories are admitted, while 600 more beds in the adjacent Medical College Hospital are also available for research purposes. Under Lieut.-Colonel J. W. D. Megaw, I.M.S., Director of the School and Professor of Tropical Medicine, team-work is here seen at its best, the patient being investigated as a matter of routine by the physician or surgeon, his stools examined for helminths, protozoa, and bacteria by the respective professors of those three subjects, a complete blood examination, including blood cultures and Wassermann reactions, is made; any skin affection is studied in the skin clinic; while a special laboratory and out-patient department are soon to be housed in a new institute opposite the school for leprosy, for which an additional Rs.2,50,000 is now available. Yet another laboratory deals with kala-azar cases under Dr. L. E. Napier, there thus being no less than six special research workers and laboratories devoting their whole time to the investigation of kala-azar, leprosy, ankylostomiasis, dysentery, diabetes, and filariasis and elephantiasis, in addition to the general professorial staff of the school and laboratories, the total staff now totalling 33 research workers all qualified in medicine or science with unlimited clinical material.

Educational Work.

The teaching is purely post-graduate, the first to be fully organised in India, and includes first a six months' cold weather course for the Diploma of Tropical Medicine (limited to 50 selected applicants to allow of individual teaching, over 30 applicants having recently to be refused admission); secondly, a nine months' course in the Institute of Hygiene to prepare men for the university D.P.H.; and thirdly, during three months of the rainy season, for assistant and subassistant surgeons, with an examination for a school certificate. In addition to clinical teaching in the hospital and in special out-patient departments, the daily routine includes a lecture on one subject by the professor, illustrated by lantern slides prepared from plates in the library books and journals, by epidiascope projections, and by cinema films of motile protozoa and other life-cycles, each student being given a copy of a very full and detailed type-stencilled precis of the lecture, so that he can attend to the teaching without having to take notes. In 20 protozoology lectures, for example, 450 lantern slides and 15 cinema films, in addition to the use of the epidiascope, were shown: after a lecture the men proceed to the laboratory to study actual specimens under the microscope illustrating the lecture, and then to the practical classroom to study material of a similar nature. On the following day a different subject is taken, leaving the professor who lectured on the previous day free for research and preparation for his next lecture for the remainder of the week. The course lasts six months, against three in the London and four in the Liverpool School of Tropical Medicine, while the six additional research workers give similar instruction in their special subjects to supplement the systematic courses of the various professors. In the

¹ Abstract of a paper on the research programme of the school read at the annual meeting of the Assam Branch of the British Medical Association, Jan. 7th, 1923.

final examination for the diploma outside examiners assist and the standard in both written and practical work is so high that in the last D.T.M. only 19 out of 29 post-graduates passed, and no one has yet obtained honours.

Research.

Although work is now in progress in no less than 17 different departments of the school, the director has always insisted on co-ordinated and co-operative work, so that three or four departments commonly take part in any one piece of research as will appear from the following very brief outline:—

1. Work on kala-azar is being carried on by the whole-time worker, Dr. Napier, with the help of the entomologist, protozoologist, and pharmacologist. Napier's simple formaldehyde serum test having been placed on a firm basis, examinations of the peripheral blood for the parasites gave 20 per cent. positive, while cultures of the flagellate stage from the peripheral blood was shown to be an almost certain diagnostic procedure, and some 2000 spleen punctures were done without a single ill-result; the disease was found to be more widespread in Bengal than was hitherto recognised. Sodium antimony tartrate continues to give good results, although stibenyl was very disappointing and dangerous, while important systematic work is being done on the difficult problem of the mode of transmission. Major Knowles having recently obtained an acute infection of a monkey experimentally by feeding on a fresh kala-azar spleen; he thinks a sand-fly may prove to be the carrier.

2. Malarial treatment is being investigated by Majors H. W. Acton and R. N. Chopra,² and the value of quinidine in completely eradicating the resistant benign tertian and quartan forms when longer courses of quinine have failed is being confirmed, 10 gr. twice a day of quinidine sulphate in solution for three to six weeks giving 60 per cent. of absolute cures against 20 per cent. by quinine, while the former is also a cheaper drug, so an immense saving will be effected in India; the still cheaper cinchona febrifuge is also very efficient. Spleen punctures in malarial cases have also furnished interesting results.

3. Protozoological and bacterial examinations are made in every dysentery case, a large majority proving to be bacillary in nature, and close investigations of the reactions of the stools by Knowles and Napier revealed that its estimation gives reliable diagnostic indications in the absence of the causative organisms—a most important discovery, which, with the well-established differences in the cellular contents of the stools, promises to enable a rapid diagnosis to be made by simple means apart from well-organised laboratories, which are few and widely scattered in the tropics. Under this head may be mentioned post-mortems on over 500 animals from the Calcutta zoological gardens last year, affording a wealth of intestinal flagellates, &c. Further, Majors Acton and Chopra have obtained poisonous amines from cultures on special media of Flexner as well as Shiga bacilli, and have made experimental tracings illustrating their toxic properties, which promise to throw much light on the nature and treatment of bacillary dysentery, while Flexner bacilli have been found in some sprue-like diarrhoeas.

4. In cholera the two last-mentioned workers have isolated amino-acids and amines and produced choleraic symptoms in animals with them as well as tested their physiological actions with interesting results.

5. As regards dietetic diseases, lathyrism has been shown by Acton to be due to a poisonous amine produced during the germination of *kesari dal* (*Lathyrus sativus*), which has been isolated by the professor of chemistry, Dr. S. Ghosh, and its action tested by Chopra, while symptoms resembling those of lathyrism have been produced in monkeys. In epidemic dropsy another amine has been isolated from the form of stored rice which produces the symptoms, so this disease should also be preventable in future.

6. Ankylostomiasis is being closely investigated by the whole-time research worker in that subject, Dr. J. B. McVail,² who has worked out a simple, rapid, and very effective method of finding the ova, tested the effect of many agents on the larva, shown that the ova will survive septic tank treatment, and confirmed the value of carbon tetrachloride as a very cheap and easily used remedy.

7. Leprosy research has been continued by a whole-time worker, Dr. E. Muir, with valuable results, which will appear in the *Indian Journal of Medical Research*, and include pathological work, mapping out the first discovered lesions in 975 cases, and further confirmation of the value of recent advances in treatment with the extension by two of the number of oils which yield active soluble preparations.

8. Tropical skin diseases are investigated in a special department under Major Acton; photographs and coloured drawings by the whole-time laboratory assistants in charge of that branch are being accumulated, together with cultures and microscopical examinations of the fungi, &c., found in

the numerous cases, which promise in time to place this difficult and very confused subject on a clearer and firmer basis, while important work is also proceeding on tropical ulcer, which is such a serious cause of labour loss on Assam tea-gardens.

9. Indigenous drugs form the special field of investigation by Major Chopra, with the active help of the chemical department, these laboratories being the first adequately equipped for this purpose in India: specimens of the best known indigenous drugs, including berberine and other reputed antimalarial drugs, are being collected and analysed, and their active principles are being investigated pharmacologically and therapeutically. It is hoped in time to ascertain which of the numerous remedies used by the ancient Indian systems of medicines are of value and supply cheaper and more efficient drugs than those now imported at great cost from Europe.

In order to ensure wide publicity to the various practical advances made by the Calcutta school, the publishers of the *Indian Medical Gazette* have generously extended considerably the pages of that long-established monthly journal, so that additional material may be published without curtailing the clinical columns. The remaining lines of research can only be mentioned: they include whole-time laboratory work on filariasis, diabetes, and dysentery; while the Hygiene Institute is doing important work in standardising water and food analyses for India, methods of clearing waters, &c.

This very condensed account of the activities of the Calcutta School of Tropical Medicine and Hygiene will suffice to show that it has already established a leading position among the medical research and post-graduate institutions of the Empire.

THE IRISH DISPENSARY SYSTEM.

THE conditions of work in the Irish dispensary service have long excited uneasiness both among doctors and social workers. Conditions are in such a state of rapid flux in Ireland that drastic change may well be hoped for, and Dr. T. Hennessy has taken the opportunity to make a forcible protest in the Royal Academy of Medicine in Ireland. The subject is dealt with in the current issue of the *Irish Chemist and Druggist*, a new journal edited by a medical man, Dr. James A. Walsh. It is admitted that the dispensary houses are cold, cheerless, and often smoky hovels, where poor people and young babies may have to wait hours in wet clothes for their turn to see the doctor, who has himself to discharge the triple duties of medical adviser, nurse, and dispensing chemist. This system is disliked as much by the doctors as by the chemists, for it is common knowledge that the medical officers are obliged to stay in the service long after they wish to retire on account of the miserable rate of pension offered. The situation has been rendered worse by the amalgamation of the Irish workhouses, which has resulted in abolition of the district hospitals and in a number of urban and rural districts with populations of 20,000 to 30,000 being left without any hospital beds. The county hospitals are not only remote, but generally ill-equipped into the bargain. Nothing short of legislation can deal with so fundamental a disorder.

INSTRUCTION IN SEX MATTERS.

To the Editor of THE LANCET.

SIR.—With reference to the query of "F. C." in THE LANCET of Jan. 20th I would state that an excellent book for the purpose is "Sane Sex Life and Sane Sex Living" by H. W. Long, M.D., Capt. M.R.C., published by Richard G. Badger, Boston. This book is sold only to physicians, or under their order, to comply with our grandmotherly legislation.

I am, Sir, yours faithfully,

A. W. HENZELL.

St. Stephen's College, Annandale on Hudson, N.Y.,
Feb. 26th, 1923.

ST. MARY'S HOSPITALS, MANCHESTER.

To the Editor of THE LANCET.

SIR.—In your review of Dr. I. W. Bride's interesting History of St. Mary's Hospitals, Manchester, you state it is not clear as to what was the ultimate fate of the Quay-street Hospital, Manchester. At the time of the removal of St. Mary's Hospital, I was secretary of Manchester Children's Hospital, Pendlebury, and Gartside-street, Manchester, and as my board were rebuilding the out-patient department, we rented the old St. Mary's Hospital in order to carry on the out-patient work. After we had vacated the premises they were, I believe, demolished.

I am, Sir, yours faithfully,

H. J. EASON.

Harrow-road, London, W., March 31st, 1923.

² THE LANCET, March 3rd, p. 454.

RAT CAMPAIGN IN SALFORD.

THE Superintendent of the Lighting and Cleansing Department of Salford in a report states that under the Rats and Mice Destruction Act of 1919 something like 1500 visits have been made to buildings frequented by rats in the borough. Of 11,576 poisoned baits laid, 4551 were taken, and in addition 3133 rats have been caught by traps, dogs, or ferrets. In 12 months the port sanitary authority treated 140 vessels in port for rat destruction resulting in a total catch of 6812, while more than 3000 were trapped in the dock-sheds and warehouses. Frequent and periodical "drives" of rats in the depôts and corporation tips have diminished the number of rats to a remarkable extent. When information is received as to the presence of rats an investigation at once is made with satisfactory results.

THE CONTINENTAL ANGLO-AMERICAN MEDICAL SOCIETY.

BEFORE the war the number of British and American practitioners established in the health resorts of Europe and Northern Africa was increasing year by year, and a society formed as a bond of union flourished. This Continental Anglo-American Medical Society arranged an annual dinner in Paris and issued from year to year a corrected list of members in order to enable scattered practitioners to keep in touch with each other, especially with a view of knowing to whose care patients might be safely recommended when changing from one resort to another. Dr. Robert Turner was the diligent hon. secretary and treasurer of the Society, acting with the help of an executive committee of eight, representing different areas. The circumstances of the war, subsequent changes in economic conditions, and the stiffening of the ordinances regulating practice by foreigners have profoundly altered the outlook of practice abroad since 1914, and in reply to a circular sent out last November Dr. Turner received 32 answers—13 informing him that the members written to had either died or retired from practice, 14 in favour of the Society being dissolved, and only 5 in favour of its continuance. It has therefore been decided to dissolve the Society, the sum in hand, amounting to about Fr.500, being handed over to the British Hertford Hospital in Paris. We confess to considerable sympathy with the minority who desired continuance, and have little doubt that, if they choose to form the nucleus, the opportunity of further association will arise. Practitioners resident abroad stand in particular need of such mutual help and support.

LUNATIC ASYLUMS AS SPECIAL HOSPITALS.

Dr. J. R. Lord, in a recent lecture which has been reprinted¹ expresses frankly and with some force his view of the difficulties with which an attempt to reform the lunacy administration must contend. The first of these is the problem of reconciling the liberty of the subject with timely and adequate mental treatment. The Lunacy Act of 1890, regarded as a measure for preventing wrongful detention, is admirably framed (and, indeed, it may be said that critics who attack the present "system" from this side are attacking its most invulnerable point). But this Act, providing, as it does, that no person shall be detained before or after he is sufficiently deranged to be certified, ignores the patient's welfare at two stages of his illness when care and treatment are of the utmost importance—namely, the stages of onset and recovery. Its whole essence and object, in fact, is not therapy, but justice.

Institutions for the treatment of incipient cases on a voluntary basis are being demanded loudly, and a few exist. Dr. Lord's view is that these "within a few years will be tainted places, just as the mental hospitals are in the public estimation. Other and still more camouflaged institutions will then be called for." He would therefore utilise existing institutions for this, as well as their present, purpose, and amend, or rather revolutionise, the lunacy laws in conformity with this object. The three propositions in which the mechanism of this change is outlined are necessarily incomplete; their underlying principle is the right of voluntary admission to State asylums without formality.

The success of such a plan presupposes the removal of the existing prejudice against asylums. This is the second difficulty, and the greater. "Only a bold attempt to teach the rising generation better ideas regarding insanity will remove it. The educational code of our national schools should decree a course on both mental and physical hygiene for senior pupils, and children should all be taught that: 1. Mental disorders are as common and as natural as common

colds. 2. That mental and physical hygiene are one and the same problem, and that such terms as 'run down,' 'fed up,' and 'need a change' are descriptive of mental exhaustion, and that insanity is only a mental breakdown of a more severe character. 3. That mental hospitals are merely special hospitals for the treatment of severer forms of mental complaints. . . . 4. That superstitious views regarding insanity belong to the past. . . ." No one who believes the third article of this creed, and the majority of common-sense people do so, will quarrel with this, or deny the ultimate value of its effect, although its feasibility is another matter. An earlier and more promising start might be made by considerate instruction of the relatives of existing patients by the medical officers in charge of them. It is these people, who, by insisting on secrecy—the virtual disappearance of an insane person from the land of the living—create in any given generation the atmosphere of distrust and horror which surrounds the asylums.

People in the early stages of insanity, particularly melancholia, often do not consult doctors, and their relatives do not recognise that they are insane. Universal early treatment will only come when the general public understands something of the nature and aspects of these disorders.

COLONIAL HEALTH REPORTS.

Public Health in the Turks and Caicos Islands.

THE Turks and Caicos Islands (writes Mr. G. Whitfield Smith, the Commissioner and Acting Judge, in his report for 1921) lie between 21° and 22° N. latitude, and 71° 50' and 72° 50' longitude, and are therefore just on the edge of the tropics. The two groups are divided by a channel 21 miles in width, and the entire area is stated to be 166 square miles. The islands are distant, about 720 miles from Bermuda on the north, about 450 miles from Jamaica on the south-west, and about the same distance from Nassau, Bahamas, on the north-west. The climate is equable and healthy and rarely unpleasantly hot, owing to the strong and never-failing sea breezes. The average temperatures taken from the records of five years discloses a maximum of 90° and a minimum of 61.5° F. The rainfall for 1921 was 26.40 inches. The few cases of malaria which occur from time to time, chiefly in the island of North Caicos, and the origin of which can usually be traced to the neighbouring republic of Haiti, are of the mildest description. There are no freshwater ponds, and inhabitants of the settlements at Grand Turk, Salt Cay, and Cockburn Harbour depend entirely on rainwater tanks with which most houses are provided. Scattered throughout the islands are wells of more or less brackish water, in most cases potable by those accustomed for generations to water of this character. The estimated population at Dec. 31st, 1921, was 5612. The white population, numbering 210, is composed almost entirely of the descendants of Bermudians. The birth-rate in 1921 was 40.5 and the death-rate 19.5 per 1000. A mild outbreak of alastrim, introduced from Santo Domingo and Haiti, occurred during the year, but there was no death from the disease. The Manning Hospital (opened in October, 1918), affording accommodation for six patients in the public wards and two in the private wards, possesses a well-equipped operating theatre and is up to date in other respects.

Public Health in the Uganda Protectorate.

It is stated in the Uganda Protectorate report for 1921 that during the year there were 62 cases of blackwater fever with 15 deaths, as compared with 56 cases and seven deaths in 1920. At the venereal treatment centre at Mulago, which was opened at the end of the previous year, there were over 36,000 attendances for treatment. Observations taken at Entebbe show that the average rainfall for the last 22 years has been 58.26 inches; the average temperature for the last 18 years, maximum 78.46°, minimum 62.76° F.; and the mean daily sunshine 6 hours 34 minutes. The climate of the Protectorate as a whole, though pleasant, cannot be considered healthy for Europeans. European children, as a rule, thrive in infancy, but considerable risk is attached to bringing them out when they are over two or three years old, as they are liable to attacks of malaria and the resultant anæmia. The health of adults depends mainly on their mode of life, and with care constitutional health should not be impaired, but if physical fitness is maintained the altitude and proximity to the Equator combine to produce nervous strain after prolonged residence. Outdoor manual labour is dangerous for Europeans, and on plantations a manager's or owner's duties are for the most part supervisory. The favourite localities for European plantations are the Buganda Province (particularly the Mengo and Mubendi districts), the Toro district of the Western Province, and the Bunyoro district of the Northern Province. There are a few estates in Busoga (Eastern Province), but this area is not so popular.

¹ Lunacy Law and Institutional and Home Treatment of the Insane, being the Final of a course of Lectures on Psychiatry for local secretaries of Mental Welfare Associations, delivered at Horton Mental Hospital, Epsom.

THE
Lumleian Lectures

[ABRIDGED]

ON

ENCEPHALITIS LETHARGICA
(EPIDEMIC ENCEPHALITIS).

*Delivered before the Royal College of Physicians of
London on March 15th, 20th, and 22nd, 1923.*

By ARTHUR J. HALL, M.A., M.D. CAMB.,
F.R.C.P. LOND.,

PROFESSOR OF MEDICINE, UNIVERSITY OF SHEFFIELD; SENIOR
PHYSICIAN, SHEFFIELD ROYAL HOSPITAL.

LECTURE I.

IN choosing a title for these lectures it seemed best to retain the two names which alone have survived amongst the many suggested for this disease. The name encephalitis lethargica survives chiefly from reasons of sentiment, since it is the one selected by von Economo.¹ By retaining it we pay tribute to his remarkable work; a work rendered even more remarkable by the fact that it was carried out at the height of a great war, under all the difficulties which that involved. In this country the name is at present the one under which official notification must be made, and its temporary retention is therefore desirable in order to avoid confusion. There is, however, some danger, lest, by emphasising one symptom, it should narrow our view of the disease and lead to the overlooking of cases in which lethargy is slight in amount or even entirely absent. On the whole, the name epidemic encephalitis seems the better, and will probably be generally adopted. In these lectures the two will be used indiscriminately.

The story of its early appearances in various parts of Europe has been frequently told, but the fact that an outbreak, of considerable extent, occurred in France, coincident with that recorded in Austria by von Economo in 1917, was for some time rather strangely overlooked. Cruchet, Moutier, and Calmette,² a week or two prior to the publication by von Economo of his classic paper in Vienna, recorded a series of 40 cases of "encephalo-myelitis" at the Société Médicale des Hôpitaux de Paris. That these were cases of epidemic encephalitis is now generally recognised, but when the second outbreak occurred in France in 1918, its relation to these cases in the preceding year was for some time overlooked. As Flexner suggests, the disease travelled more quickly than the literature concerning it.

HISTORICAL.

The accounts of past epidemics contain many references to outbreaks presenting clinical features which may easily be interpreted as instances of this disease. Crookshank³ has collected most of the available information on this subject in his many valuable papers. Of the three epidemics which have been more closely associated with epidemic encephalitis, two have been thus associated by their "lethargic" characters—the "Schlafsucht," of Tübingen (1712-13) and the disease called "nona" (1889-90); whilst in the third, Dubini's electric chorea (1846), the connexion is not through this symptom, but from the muscular jerkings. This latter disease did not suggest itself as a precursor of epidemic encephalitis until after 1919, when the myoclonic type first became prominent. If these three diseases really were outbreaks of epidemic encephalitis, they failed to show the variety or the extent of spread which the present "influence" has done. Isolated examples of more or less definite cases have been found in the literature of the past century. Gayet,⁴ Bozzolo,⁵ Achard and Paiseau,⁶ Raymond and Claude,⁷ and others have published such cases.

In 1903 an apparently typical case was under my care in a boy of 11. Within two days of onset with fever, malaise, and vomiting, he had attacks of irregular breathing with dyspnoea leading to tetany. Dysphagia was also present. Right facial palsy and aphasia with jerkings in the limbs occurred next day. He was very drowsy by day and restless and irritable at night. There were incoördinate movements of the eyes and oscillations of the eyeballs "not amounting to nystagmus." Marked sweating and (?) loss of accommodation. Kernig + at one time. Recovery took place in two or three weeks, but a slight febrile recurrence occurred about six months later, and a permanent slight facial paralysis with spasmodic twitching persisted for many years. He is, however, a healthy man and saw active service in the war. In the same year, 1903, a woman attended hospital, complaining of constant sleepiness. She would fall asleep at all hours of the day whilst working or eating. This patient was lost sight of and cannot be traced.

J. A. Nixon, of Bristol,⁷⁹ has recorded a typical case in a boy, which occurred in 1908. Apart from the suggestive clinical picture, during the acute stage, the resulting Parkinsonism makes its true nature evident. Souques⁸ dates a case of paralysis agitans from a probable encephalitis in 1910. The patient was then 39 and for more than a year slept all day and had to be wakened to eat. During all this time there were rigidity and awkwardness in the left arm. The tremor did not begin until 1914.

In this connexion it is of some interest that during 1916, whilst Cruchet's cases were occurring in France, it is probable that isolated cases were occurring on the British front. In June of 1916 a soldier was invalided home, and came under my care at the Third Northern General Hospital suffering from what was then put down as an "atypical paralysis agitans." He was only 38; the face and posture, though slight in degree, were unmistakable. There was usually a fine tremor of the right arm and leg, but at times there was a coarse intention tremor. The pupils were unequal. At that time the question of a post-encephalitic residuum was necessarily not thought of. It seemed worth while to follow this case up and see what had happened. He is now in a hospital, and by the courtesy of the medical officer in charge, the following facts have been ascertained. At the present time, seven years after onset, he has "a coarse tremor of the right hand and arm, increased by voluntary effort. Some rigidity. No anæsthesia or wasting. Headache, vertigo, and broken sleep at times, and he is very excitable." It is thus evident that during these seven years he has not developed as a typical pre-senile paralysis agitans does, and the persistence and irregularity of the residua resemble cases of encephalitic origin.

In 1912 G. W. Watson, of Leeds,⁹ recorded two cases of focal encephalitis which have many resemblances to epidemic encephalitis. Small outbreaks in children, of a suggestive kind, were published by Comby¹⁰ in 1907 and Gordon¹¹ in 1913.

EPIDEMIOLOGY.

In tracing the spread of the disease to various parts of the world, it is evident that whilst its occurrence was recognised in certain places only, isolated cases of a similar kind were probably present over a much wider extent in Europe than the records of that time admitted. Frequently they were referred to as "Grippe-encephalitis," but with the advent of more definite outbreaks in later years their true character has been admitted. The most severe outbreak in Europe generally was that of the winter 1919-20, whilst in this country by far the largest outbreak was in the following winter 1920-21.

In January, 1919, the Local Government Board made notification compulsory. As a result we have in this country statistics which are unequalled either in quality or quantity by any elsewhere. The value of the reports issued first by the Local Government Board and later by the Ministry of Health, in regard to this disease, cannot be assessed too highly. They

are models of what a Government department can do to forward medical knowledge.

During successive years the official figures of notified cases in England and Wales are:—

1919	..	..	541	1921	..	..	1470
1920	..	..	890	1922	..	..	454

It is clear that the number of cases in many other European countries has been very much larger than in this country. In France it is estimated that there must have been at least 10,000 cases up to 1920, and in Italy up to April, 1920, 3900 cases had been reported.

INCIDENCE OF THE DISEASE.

Seasonal Incidence.—In most countries this has been strikingly constant. The outbreaks usually begin in November or December and reach their maximum in February or March, disappearing rapidly in April and May. This seasonal incidence was first called attention to by S. P. James¹² in 1918, and by him emphasised as a point of difference from poliomyelitis. In one or two places outbreaks have shown their maximum at other periods, but this is exceptional.

Occupation and Sex.—There is nothing noteworthy as to the incidence in different occupations or the two sexes. Statistics of large numbers show that the sexes are about equally affected (Parsons¹³).

Age.—The first series of cases published in this country in THE LANCET in April, 1918, included a woman of 70 and Harris's¹⁴ case of a new-born infant. Between these extremes the ages varied widely. This has been characteristic throughout. No age is exempt. The difference in age-incidence between this disease and poliomyelitis was also emphasised by James¹² in 1918 and his observation has been fully confirmed by subsequent events. Batten and Still¹⁵ first called attention, in this country, to the peculiar form in young children, in their paper on "Epidemic Stupor."

Race.—In Warsaw, Sterling¹⁷ found the case-incidence in the Jewish population much greater than amongst the Christians.

Case-mortality.—The case-mortality is high. The figures vary in different countries. In England and Wales the official figures are: 1918, 22 per cent.; 1919-20, 48.3 per cent. In most other countries the figures come from the records of individual observers only, and these vary widely. On the whole, the average appears to be something over 25 per cent. This figure is much smaller than that of the case-mortality in this country. The difference is possibly due to the varying inclusion, or exclusion, of mild cases (*formes frustes*). In official statistics many of these are probably absent, as they are not notified, whilst individual observers, on the look-out for such cases, miss none. There seems no evidence, except the official figures, to suggest that the disease has been more severe in this country than elsewhere; indeed, judging from the literature, the reverse seems more probable. The mortality, according to Parsons,¹³ is high in the first five years of life—lowest at about 10 to 15—then rises with each decade, until in the seventh it is 80 per cent.

Pregnancy.—Judging from the number of recorded cases it appears as though pregnant women were particularly susceptible to this infection. Whether this is really so or not, is difficult to prove. There is some evidence that in women who have suffered from an attack, the occurrence of a subsequent pregnancy seems to precipitate the onset of later manifestations. It may occur at any period of pregnancy, but usually towards the end, rather than early. There seems to be no particular tendency to abortion. The mortality is thought by many to be higher than in other cases. The official statistics of this country do not confirm this. The question of whether or not to empty the uterus, either by induction of labour or Caesarean section, is very difficult to answer. The evidence on this point is, as yet, contradictory. Personally, I

have seen induced labour followed by death, and Caesarean section, even under most adverse conditions of persistent hiccup, completely successful—a healthy child was born and the mother recovered. The effect on the child will be dealt with under contagion.

CONTAGION.

The rarity of any evidence of contagion has been noted in every country and in every outbreak which has occurred. There is, however, evidence from three sources that contagion may occur, at times to a marked degree. These sources are: (a) Outbreaks occurring in institutions; (b) mothers infecting new-born babies; (c) more than one case in household, nurses attending cases, &c.

(a) Of the first group three striking examples have occurred. The first was in August, 1919, at a girls' home at Derby, investigated by MacNalty and fully recorded in the annual report of the Ministry of Health, 1919-20. Twelve cases occurred amongst the inmates within two weeks, with five deaths. The true nature of the disease was proved by pathological and experimental investigations with material from a fatal case, carried out by McIntosh and Turnbull.^{18 19}

The second outbreak was reported by Krause²⁰ in July, 1922. The date of its occurrence is not stated. This, also, took place in an institution for girls, in the Lower Rhine district. Ten who slept in the same room were taken ill with dysphagia, dyspnoea, diplopia, and paralysis of accommodation. Nine died within two and a half days. Thirteen other inmates became ill some days later, four of whom died. The doctor attending them was similarly affected eight days later. The pathological investigations had not been completed at the time of publication, but no other obvious cause was found post mortem. Food poisoning, which had been suspected, was positively excluded.

The third was recorded by Fyfe.²¹ It occurred in September and October, 1922, at a village school for girls in Warwickshire. Four scholars were affected—there were no deaths. The attacks were of lethargic type and ambulatory. In three cases there were definite mental residua.

Two striking features of these three epidemic outbursts of intense contagion are, that all occurred in institutions for young females, and, that in two, certainly, they appeared at periods when no general outbreak of the disease was occurring in the neighbourhood. The exact date of the Rhenish outbreak is not given. It was reported to the Cologne Society in July.

(b) The number of cases in which children born of parents suffering from the disease have become infected is quite considerable. Harris,¹⁴ Pirie,¹³ Montgomery,¹³ Legge,¹³ Mercier Andrieux and Bonnaud,²² Santi,²³ and others have recorded such cases. In a case seen by Novaes e Sousa²⁴ myoclonus was present in the baby during parturition. Experimentally also Levaditi, Harvier, and Nicolau²⁵ have succeeded in transmitting their virus, obtained from human encephalitis through a pregnant rabbit to the central nervous system of a fetus rabbit in utero. In Hallé's²⁶ case the mother began with encephalitis whilst suckling a healthy four months' baby. She declined to wean it. The baby began to be ill nine days after the mother, and died in five days; the mother recovered.

(c) Of other isolated cases—Buzzard and Greenfield²⁷ saw mother and son affected within 17 days, De Laroche²⁸ wife and husband within a month, Reece²⁹ and Lortat-Jacob³⁰ nurse and encephalitis patient, Roger and Blanchard³¹ two soldiers in neighbouring beds, Netter³² three children sleeping in same room. The fact that such cases are thought worth recording is the strongest testimony to the general absence of contagion.

Kling, David, and Liljenquist³³ in an intensive study of an epidemic in the Swedish province of Wilhelmina found a large number of incomplete cases in the households where the full form of encephalitis cases occurred. Some of these had

evidences of nervous complications, others had merely slight generalised malaise. In two houses all the inmates were infected with one or other form of the disease.

DURATION OF INFECTION.—INCUBATION PERIOD.

There is some evidence, both clinical and experimental, that contagion may persist for a very long time. Netter,³⁴ Lemierre,³⁵ and others have recorded such cases. As a rule, the contagion seems to light up with a recrudescence of the disease, which may be after an interval of many months. Experimentally Levaditi, Harvier and Nicolau,²⁵ and others find that their virus can be preserved active for many months, whilst Netter, Cesari, and Durand³⁶ obtained a positive result in a rabbit from the nervous system of a case fatal after 15 months, and Kling³⁷ from the cerebro-spinal fluid of a post-encephalitic Parkinsonian of 18 months' duration. The clinical occurrence of "recrudescences" is a well-recognised characteristic of the disease. The long duration of infection adds considerably to the difficulty of any kind of preventive isolation.

From such data as are available Parsons¹³ concludes that the incubation period may be from one day up to two weeks or even more. Kling and Liljenquist³³ from three of their cases think that ten days is the average period, and in Hallé's case²⁶ this was so.

EPIDEMIC HICCUGH.

Although the occurrence of hiccough in epidemic encephalitis was noted by von Economo¹ in 1917, and by Lord³⁸ at Colwyn Bay in 1918, the actual epidemic of febrile hiccough did not begin until the late autumn of 1919—almost coincidently with the first appearance of the myoclonic type of encephalitis. Cases were reported from various parts of Europe and also from Winnipeg (Boyd³⁹), where at least 50 cases were seen preceding an outbreak of encephalitis. During the winter of 1920-21, these hiccough epidemics recurred to a considerable extent in various parts of Europe, France, Italy, and Switzerland particularly. In this country they were also seen, but only in comparatively few numbers and scattered areas. The hiccough is usually rather severe, lasts for a few days, and is often accompanied by slight feelings of malaise, headache, feverishness, and perhaps catarrhal symptoms. It may be more severe, and even distressing, persisting for a week or two. It is usually intractable.

Infectivity.—There is abundant evidence that it is contagious. In all countries where it has appeared, cases, in which contact with a case has led to infection, have been repeatedly recorded. In this country Farrar¹³ traced direct contact in a series of eight cases. Doctors attending cases have themselves suffered. Nor has it entirely disappeared. During February, 1923, I saw three cases in one household, one of which persisted violently for a fortnight. Other cases have also been reported during the last few weeks in the Midlands.

Relationship to Encephalitis Lethargica.—Lemoine⁴⁰ in France, and Farrar¹³ in this country have recorded cases in which contact with a case of epidemic hiccough has been followed by a typical attack of encephalitis lethargica. Dargein and Plazy⁴¹ saw a man who, beginning with what appeared to be a simple case of epidemic hiccough, which lasted for 18 days, recovered, but about two weeks later developed a typical oculo-lethargic type of encephalitis. Dufour,⁴² Clerc Foix and Mercier des Rochettes,⁴³ and others have reported similar cases. Some are of opinion that the two conditions are identical. Bing and Staehelin⁴⁴ include "singultus epidemics" in their statistics of encephalitis, as one of the rudimentary forms: Lhermitte⁴⁵ speaks of *Le Hoquet épidémique: forme singultueuse d'Encephalite épidémique*. This, however, seems at present a matter of uncertainty and there are difficulties in accepting such a generalisation. Rosenow and Jackson,^{46 47} from their experimental work on epidemic hiccough,

believe that it is due to a non-filtrable coccus of the pneumococcus-streptococcus group. If this work is confirmed, it is difficult to correlate with the filtrable virus of epidemic encephalitis described by Loewe, Hirschfeld, and Strauss,⁴⁸ Levaditi, Harvier and Nicolau,²⁵ and others. At the present time no dogmatic statement on the relationship of the two conditions seems warranted.

RELATION OF EPIDEMIC ENCEPHALITIS TO OTHER EPIDEMIC DISEASES.

The controversies which in the early days raged around its relations to poliomyelitis have now subsided. They were at that time very natural. Many whose experience of the latter disease was very wide and whose opinions were weighty, inclined to the identity of the two. It is mainly, however, in the varying after-results that the two differ so widely, and on its first appearance such after-results were necessarily unknown. The residua of poliomyelitis are practically limited to greater or less permanence of the original paralyses; in epidemic encephalitis such paralyses form a relatively, and unexpectedly, small percentage of the many and severe residua.

The relation to epidemic influenza or "grippe" was not seriously considered in this country, or in Vienna, or France, on the first appearance of encephalitis, because there was then no concurrent epidemic of influenza, and because the symptoms of epidemic encephalitis and its mode of spread were so entirely different from those familiar in epidemics of that disease. In various countries, however, the identity of the two was for some time upheld with much tenacity. This view seems to be gradually weakening even in the most powerful of its strongholds. As time goes on the difference between the two diseases becomes increasingly marked.

Although the evidence appears sufficient to warrant considering epidemic encephalitis as a separate disease, its possible relationship to other epidemic diseases cannot be ignored. That it did appear at or about the same time as an epidemic of influenza of great severity and extent might be merely a coincidence, but seeing that outbreaks, the descriptions of which are so similar in many respects to those recently seen, have, in past times, been recorded in more or less close connexion with waves of epidemic influenza, the probability of some relationship is considerable. What is the nature of that relation has not yet been satisfactorily explained.

There are those who from an epidemiological standpoint would group together influenza, cerebro-spinal fever, polio-encephalitis, poliomyelitis, and epidemic encephalitis as arising from some common condition. According to this point of view, it would seem that could the waves of pandemic influenza be abolished, it is possible that the epidemics of the other above-mentioned diseases would disappear also; that whilst these "satellite influences" are not identical in form with influenza they are so nearly related to it that without its help they would not be potent factors in producing disease. There is much to be said from this point of view, and it may be that in generations to come, when further experience has accumulated, the exact relations in which these diseases stand to each other may be more intimate than is now generally believed. Possibly there may be some common factor in the constitution of the hosts or some associated change in physical conditions which renders many usually harmless parasites capable of becoming dangerous and destructive enemies to man at certain periods of time. Meanwhile, the more accurate knowledge of the individual components of these epidemic scourges would seem to be essential in approaching the ideal of preventing their occurrence.

The relation of epidemic encephalitis to the Australian X disease which appeared in that country in 1917-18, seems doubtful. Cleland and Campbell⁴⁹ consider that the two are widely separated both on clinical and experimental grounds. Breinl⁵⁰ and Flexner⁵¹ incline to the view that it was an aberrant form of poliomyelitis.

PATHOLOGICAL ANATOMY.

The earliest findings by von Economo and von Wiesner¹ in Austria, in May, 1917, were soon followed by those of Marie and Tretiakoff⁵² in Paris, in May, 1918, and of Marinesco¹² in this country, in October of the same year. Since then their findings have been repeatedly confirmed by pathologists in every country where fatal cases have occurred. There is indeed a definite recognised histopathology of the fully developed disease. Buzzard and Greenfield²⁷ called attention to the occurrence of "meningeal hæmorrhages." Bramwell and Miller⁵³ found a surface hæmorrhage over the cerebellum. The general histologic picture has been frequently described and is familiar. The perivascular cuffs of variable thickness and extent, the changes in the nerve cells and glial proliferation, the tendency to localisation in the grey rather than the white matter, and chiefly, but not exclusively, in the mesencephalon and basal ganglia. Kinnier Wilson⁵⁴ speaks of the "peri-aqueductal grouping." Other parts may, however, be affected—the cortex, the cord, nerve trunks, and ganglia.

MINUTE GRANULAR BODIES.

Da Fano and Ingleby⁵⁵ in 1919 described minute granules in the protoplasm of certain groups of nerve cells from fatal encephalitis cases. Da Fano,⁵⁶ in further investigations, found them both within and without the nerve cells, and also in salivary glands. Hume, Nattrass, and Shaw⁵⁷ saw them in four fatal cases. More recently Da Fano,⁵⁸ working with the virus of herpes febrilis, has found similar bodies in the brains of rabbits infected with this virus. Encephalitic neuro-corpuscles have also been described by Levaditi, Harvier, and Nicolau²⁵ in experiments with their virus of encephalitis. Da Fano believes that these are identical, morphologically, with the structures he finds in herpetic meningo-encephalitis.

LECTURE II.

CLINICAL SIGNS AND SYMPTOMS.

Epidemic encephalitis is characterised by three striking clinical features: (a) its polymorphism, (b) its irregular progress, (c) its many and peculiar after-results. The irregularity of its progress, by fits and starts (von Economo's *schubweise*), makes the separation of sequelæ from recrudescences almost impossible.

Onset.—Classification.

The onset may be sudden or gradual. Sometimes the suddenness is extreme. Apoplexy (Boyd³⁹), epilepsy (Guillain⁵⁹), syncope (Schmidt⁵⁹), vertigo, headache, or other pains may, any one of them, appear "like a bolt from the blue." Such stroke-like onsets are not the most common. As a rule, however, the day of onset, sometimes even the hour, can be definitely stated. One of my patients went to bed perfectly well; on waking next morning he saw double, fell over on trying to get up, and talked incoherently. A little boy was playing in the snow in the afternoon and by tea-time was lethargic and feverish.

The onset may take various forms—general malaise with headache and fever, simulating epidemic influenza, slight delirium at night. Vomiting, and occasionally diarrhœa, sometimes of considerable obstinacy. Hume, Nattrass, and Shaw⁵⁷ saw acute diarrhœa at onset in a fatal case. Constipation, however, is more common. Drowsiness of varying depth, and usually increasing, may be the first symptom. Such cases may remain ambulatory for long periods or even throughout. Diplopia, with or without lethargy, is common. Other cranial or limb palsies may occur at onset. General extreme asthenia, acute mental symptoms, mania, delusional insanity, confusional states, a delirium tremens-like condition, or excito-motor phenomena of all kinds may be the first evidence of disease. Edwin

Bramwell⁵³ called attention to the onset with severe neuralgic pains in the head or limbs. When the pain is abdominal the simulation to an acute abdomen may be very close.

No completely satisfactory method of classification has yet been made. The plan suggested by MacNalty,¹² and adopted, with the additions suggested by Walshe,⁶⁰ by the Ministry of Health has the advantage of simplicity and convenience.

GENERAL SYMPTOMS.

Fever is usually present, but, as a rule, does not play a prominent part in the disease. Hyperthermia is occasionally seen, even as high as 111° F. in a case reported by Gelpke,⁶¹ which recovered. In one of my cases the temperature reached 107.5° at death. Headache is a frequent symptom and often persistent. Usually there is nothing characteristic about it. Lethargy in some degree and at some period or other is the rule. Graham Forbes⁶² found it in 126 out of 130 cases. It varies in character and degree. It may be light and the patient knows what is going on around, but cannot rouse himself. In many, apparently asleep, one is surprised by the quickness of the reply to a question. In others the reply is unduly delayed. The sleep, however, may be much deeper than this and waking not easy. In such patients the period of lethargy may be a complete blank in their minds afterwards. The desire to sleep may be irresistible and occur at any moment.

Duration of Lethargy.

Lethargy may last for days, weeks, or, in rare cases, months. It may disappear and recur at long intervals. In one of my cases, a girl of 15, attacks of lethargy recur about once a month. Each lasts for a few days only. This has continued for five years. Netter has described a case in which lethargy appeared first 12 months after the onset of encephalitis. It may be absent throughout, even when ocular palsies are present.

Theories as to Cause of Lethargy.

Five possible views as to the cause of lethargy have been brought forward.

1. Buzzard⁶³ thinks that it may be due to increased intraventricular pressure, caused by the acute changes around the aqueduct of Sylvius.

2. MacNalty¹² suggests an extension of inflammation from the region of the third nerve nuclei to neighbouring afferent paths, thus interfering with stimuli to the thalamus.

3. Disordered hypophyseal function, leading to hypopituitarism, has been suggested on the grounds that lethargy is a symptom of this defect and that polyuria, obesity, and even Fröhlich's syndrome have followed encephalitis.

4. Marinesco⁶⁴ considers the lethargy as a part of the marked tonus changes which are so often present.

5. Abrahamson⁶⁵ looks upon a poisoning by the virus of the psychic synapses as causing the various stages of sleep in a gradual series from drowsiness at the one end to coma at the other.

As regards the question of hypopituitarism, no definite or sufficient pathological changes in the hypophysis have as yet been found in these cases to support this view. At present the data are insufficient for arriving at a conclusion as to the cause of lethargy.

Hyposomnia.

Hypo- or in-somnia may persist throughout. Laporte and Rouzaud⁶⁶ record such a case which was fatal on the eleventh day. More frequently it alternates with lethargy, either preceding or following it. Nocturnal insomnia will be referred to later. All agree that when present it is very intractable.

LOCALISING SYMPTOMS.

These are so numerous, seeing that any part of the nervous system may be involved, that it is only possible to refer to certain outstanding features.

The ocular disorders are almost entirely limited to the muscular actions. Changes in the optic nerves, though recorded, are rare. As a rule these muscular changes are, as Lhermitte pointed out, rather a disturbance of muscular synergy than definite strabismus,

although the latter may occur. Nystagmiform movements, or even irregular jerks of the eye muscles, are frequent. Paresis of conjugate movements is often seen. Incomplete bilateral ptosis, somewhat like an exaggeration of the "lids heavy with sleep," is often associated with lethargy and may persist. Pupillary disorders of every kind and in almost every combination have been observed. Argyll Robertson pupils with loss of knee-jerks was first recorded by Naef⁶⁷ at Munich in 1919. Jewesbury⁶⁸ recently showed such a case at the Royal Society of Medicine. Bilateral paralysis of accommodation is not uncommon. Genet⁶⁹ thinks that this, with intact light and convergence, is a valuable sign, and that it differs from other forms in its sudden onset and curability. The fifth and seventh nerves are both frequently involved. It is not unusual to find a facial diplegia. In one of my earliest cases this was the only symptom throughout. It disappeared completely. Weakness of the masticatory muscles is common; in some cases there is complete "diplegia masticatoria" for a time. The hypoglossal is often affected. Hemiatrophy of the tongue may persist as the only evidence of past disease.

Positive symptoms in connexion with all these cranial, as well as other nerves, are common. More commonly they occur as later manifestations, and will be dealt with elsewhere. In the tongue region they may be exceedingly troublesome. André-Thomas and Jumentiet,⁷⁰ Christin,⁷¹ and Byschowski⁷² have recorded such cases. In Schmidt's⁷³ case the tongue was rigidly projected over the teeth, necessitating surgical measures to give relief. Another feature of the cranial palsies is their temporary character and the tendency to shift from one nerve to another or from one side to another.

Dysphagia.

This occurs frequently. Many spasmodic affections of the pharyngo-laryngeal region are also seen. In a certain number of these the similarity to rabies is very close. In October, 1918, I saw a case of this kind. The attacks of laryngeal spasm were frequent and of great intensity, the patient becoming cyanosed and unconscious in them. Tracheotomy was performed and gave relief. Any attempt at swallowing set up the spasm at once. The attacks passed off in a few days but were followed by other nervous symptoms. Similar cases were recorded by Denyer and Morley⁷⁴ in 1920, and by Kahn Barbier and Bertrand,⁷⁵ and Sarkies⁷⁶ in 1921. In a fatal case typical changes were found in the medulla and cervical cord. These cases call to mind those recorded in past epidemics, quoted by Crookshank³ as "hydrophobia-without-the-dog."

Positive Excito-motor Phenomena.

Although positive excito-motor phenomena were present in isolated cases during the first outbreak, they then held no prominent place in the clinical picture. Amongst von Economo's first series, choreatic unrest and choreatic jerkings occurred in two cases, and Cruchet² also noted their occurrence. In January, 1919, Poynton¹⁴³ showed a myoclonic case in a child of 2, which began in the 1918 outbreak. It was not, however, until the epidemic of 1919-20 that they became predominant. Sicard and Kudelski¹⁰³ in Paris, and later Boveri,¹⁰⁴ called attention to the prevalence of so-called myoclonic types of the disease, whilst in this country Ellis¹⁰⁵ and others recorded similar cases. Since then large numbers have been seen in all parts of the world. In their more severe forms they present a very strange picture. The only case of this extreme type amongst my series occurred in December, 1919. Headache and pains in the neck occurred for the first week or two, then jerkings of extreme violence affecting chiefly the neck and shoulder muscles, causing extreme pain, associated with persistent insomnia and ending fatally. Lethargy was absent throughout. No autopsy was allowed. In this case, as in others recorded, the explosive speech was a notable feature.

Chorea-like movements have been frequently seen in later outbreaks. Stertz¹⁰⁶ reports that 50 per cent.

of his cases in Munich during the 1920 epidemic were of this type. In most cases the terms choreatic or choreatiform movements are used signifying that whilst like cases of Sydenham's chorea, they are not, as a rule, quite the same. That has been certainly so in most of the cases I have seen. The simulation of chorea may, however, be extremely close. In June, 1918, a boy of 16 was admitted to hospital with what was apparently chorea gravis. He was occasionally noisy and delirious at night; there was no heart lesion. Temperature normal; respirations 24 to 36. He became steadily worse and died three weeks after admission. The history showed that he had begun to feel ill about a month before, lethargy being marked for several days. Twitching and delirium kept recurring at intervals a fortnight after onset. Looking at the movements alone in this case they were indistinguishable from those of Sydenham's chorea. From the history it was obviously encephalitis lethargica.

Paralysis of all kinds may occur, hemiplegias, monoplegias, paraplegias, crossed hemiplegias. Buzzard and Greenfield²⁷ were the first to call attention to hemiplegia in all its forms as being of this origin. Permanent flaccid palsies may result, but compared to their frequency after poliomyelitis they are relatively rare in this disease. Polyneuritis affecting chiefly the legs is not very common. The three cases which I have seen all recovered, two completely.

Myasthenic Type and Cerebellar Type.

Cases simulating myasthenia gravis have been recorded. The first case of encephalitis which came under my notice in 1918 was of this type. Grossmann⁷⁷ has recently recorded three such cases.

Fragmito⁷⁸ and others have recorded cases showing definite cerebellar symptoms, and Marinesco¹² in 1918 found anatomical changes in the cerebellum of a fatal case.

The Reflexes.—Fits.

The changes in the reflexes necessarily vary with the location of the morbid process in the central nervous system. The cases with loss of knee-jerks and fixed pupils have been referred to above. Kernig's sign may be present in the acute stages of meningitic type.

Fits of epileptic type are not uncommon. They may occur at onset, during the illness, or as an after result. In one of my cases a little boy whilst convalescent in the third week suddenly had a series of fits with rise of temperature, which lasted only a few hours. He then continued his interrupted recovery. Edgeworth,⁷⁹ of Bristol, has recorded a similar case.

Hypertonus.—Katonus.

Both of these are common symptoms. In a case reported by Davis,⁸⁰ in which the arms were firmly flexed, they were extended under anaesthesia and fixed in extension. On removing the splints the arms were equally fixed in extension and could not be straightened. Petren⁸¹ speaks of a case in which the hypertonus was so great as to simulate paralysis.

Trophic.—Parotitis.

Bedsore are not uncommon, particularly in cases associated with incontinence. Severe acute wasting has been recorded by MacNalty and others. It is not rare in some Parkinsonians.

A certain number of cases have been recorded in which bilateral parotitis was an early symptom. Grenet⁸² recorded the first case of this type in 1918. In 1919 such a case came under my notice. Mumps was suspected at first, but later typical symptoms of epidemic encephalitis appeared and the true nature of the disease was confirmed pathologically. Early sialorrhoea is seen occasionally.

Skin.—Polyuria.

Unfortunately no diagnostic rash occurs in this disease. Erythematous and at times purpuric eruptions occur, but there is nothing constant or characteristic about them. The occurrence of "greasy face" (Salbestriken) was noted by Cohn,⁸³ v. Sarbo,⁸⁴ Stern,⁸⁵ and others. Herpes febrilis seu labialis is not common. Herpes zoster has been observed.

Polyuria has occurred in a considerable number of cases. It usually begins from the third to the seventh week, somewhat suddenly. It often ends suddenly also. In Benard's⁸⁶ case as much as 19 litres was passed per day.

Hæmorrhagic Syndrome.

From time to time a hæmorrhagic tendency has been noted. Buzzard and Greenfield²⁷ called attention to meningeal hæmorrhage, and hæmorrhagic cerebro-spinal fluid has been several times observed since. Naish recently had such a case under his care at the Sheffield Royal Hospital. Purpuric eruptions have also been reported by Roger⁸⁷ and Rathery and Bonnaud.⁸⁸ Netter described a case of intestinal hæmorrhage; Bassoe⁹⁰ and Eschbach⁸⁹ saw severe epistaxis, and Petit⁹¹ recorded *sueurs de sang*, occurring in paroxysms on the face. Quite recently Tinel and Dupouy⁹² have reported two fulminating cases, one with fatal hæmatemesis, another with terminal nasal, buccal, and intestinal hæmorrhages. In each there were multiple ecchymoses. Since then Douzelot and Krebs⁹³ saw a similar fatal case with severe gastrointestinal bleeding, hæmothorax, and an extensive purpuric rash.

EXPERIMENTAL WORK.

In 1919 Strauss, Hirschfeld, and Loewe,⁹⁴ in New York, succeeded in obtaining positive results in the monkey and rabbit from intracerebral inoculation of central nervous system emulsion from a fatal case of encephalitis and also from naso-pharyngeal washings from a non-fatal human case. There was some tendency to hæmorrhagic lesions. Later, in 1919, McIntosh and Turnbull,¹⁹ in this country, obtained positive results in the monkey from brain emulsion of a fatal case in the Derby outbreak. These results were obtained by intracerebral and intraperitoneal routes. In 1920 Loewe and Strauss⁹⁶ described, in connexion with their virus, a filtrable organism obtained from the brain, naso-pharynx, spinal fluid, and blood of a human case. They also found that their virus could be preserved in 50 per cent. glycerine, and passed through many series of animals.

In 1920 Levaditi, Harvier, and Nicolau,²⁵ at the Pasteur Institute, began the publication of their successful experiments on the virus of encephalitis. This work, which has been continued up to the present time, has, incidentally, given rise to so much other work in various fields of research, and led to such suggestive results, that it necessitates careful consideration. Their first successful results were obtained, as were those of Loewe and Strauss, and McIntosh and Turnbull, from brain emulsion from a fatal human case. This strain is spoken of as "virus C." Besides this, they obtained positive results from a human naso-pharyngeal swab, which they call "virus fixe." So far as they can ascertain, these two viruses are identical. Both give positive results in rabbits, either when inoculated directly into the cerebrum, or when applied to the previously abraded cornea in the rabbit. The latter is spoken of as the corneal route. These have been carried on in series for many months.

The incubation period by the intracerebral route is 4 to 6 days, by the corneal route 8 to 12 days. Enucleation of the infected eye after 24 hours does not prevent the onset of encephalitis. The incubation period can be reduced by the administration of narcotics. The changes are always found in a particular area of the brain, which they call the elective zone, and is not the same as that affected in rabies. There are two stages in the process, one acute, polymorphocytic, and of short duration, the other more chronic, and mononuclear.

Individual rabbits vary considerably in susceptibility to the virus. McIntosh⁹⁷ has recently confirmed the diagnostic value of rabbit inoculations in cases of epidemic encephalitis. He finds that basal nuclei emulsion is usually positive, whilst cerebro-spinal fluid gives positive results in about 25 per cent. of the cases. He lays stress on the site affected, the nature of the cells, and the foci in the brain.

Properties of Virus.—Human Salivary Virus.

Levaditi and his fellow-workers find that their virus has a selective affinity for nerve cells, can be preserved in glycerine solution or in a dry state for very long periods, and remains active in milk at ordinary temperature for at least 96 days. It is effective in 1/1000 saline, but innocuous in 1/10,000. Of various antiseptics, potassium permanganate 1/1000 destroys its activity completely in vitro. They did not obtain any positive results from the blood, salivary glands, or spinal ganglia, thus differing from the results in rabies and poliomyelitis respectively.

In further investigations it was found that the saliva from healthy human mouths is also capable of producing positive results, closely similar to those obtained with encephalitis virus, when applied to the rabbit's cornea. In this case, however, no encephalitic changes follow. The virus is keratogenous only. It is filtrable and so far as can be ascertained not due to a recognisable organism. It is only found in the mixed saliva of the mouth and not in the parotid secretion as it issues from the gland. It appears to be in some sort of connexion with the mouth epithelium. These findings are confirmed by Doerr and Schnabel,⁹⁵ and others.

Virus of Human Carrier.

On May 7th, 1921, Levaditi, Harvier, and Nicolau²⁵ obtained from the mouth of a healthy man who had been in contact with cases of encephalitis, a virus which differed from the above salivary virus in that it produced encephalitis as well as keratitis. Indeed, it behaved in every way, biologically and in its effects, like their original virus C and virus fixe; they therefore believe that the existence of carriers, as in poliomyelitis, is experimentally demonstrated.

At this stage of their work there were thus four available viruses: (1) virus C; (2) virus fixe from cases of human encephalitis; (3) salivary virus from human mouth, keratogenous only; and (4) salivary virus of carrier, keratogenous and encephalitogenous, like (1) and (2).

Virus of Herpes Febrilis.

Meanwhile other workers, Blanc and Caminopetros,⁹⁸ recalling the work of Grüter in 1913 on the virus of herpes febrilis and its similarity to the results obtained by Levaditi and his fellow-workers, began to study the properties of this herpetic virus. Grüter⁹⁹ had successfully transferred human corneal herpes to the rabbit's cornea, and these experiments had been confirmed by others. Levaditi, Harvier, and Nicolau²⁵ also find that this herpetic virus has close relations with the virus of encephalitis and the salivary viruses, so that it is possible to place the five in a regular series. Perdrau¹³ in this country, working with herpetic virus, confirms the transmission in series, the absence of bacteria and the preservation in glycerine solution, and Da Fano,⁵⁶ working with the same virus, confirms many points of similarity with the virus of encephalitis.

According to Levaditi, Harvier, and Nicolau, encephalitis lethargica is due to a filtrable specific agent—the ultra-virus of encephalitis. This virus may exist in at least three forms: (a) In the mixed saliva of healthy persons. It is attenuated, has an affinity solely epitheliotropic and its power is solely keratogenous. (b) In the vesicles of herpes febrilis (labialis). Here it is more virulent; compulsory epitheliotropic, but a facultative neurotropic. (c) In the saliva of carriers and in the naso-pharynx and central nervous system of encephalitics. This is very virulent, and an obligatory epitheliotropic and neurotropic.

LECTURE III.

PROGNOSIS.

Whilst in most acute diseases prognosis concerns chiefly the question of life or death during the attack, in the case of epidemic encephalitis it does not end there, but includes the almost equally important

question, Will the recovery be complete, or will something be left behind?

Prognosis as Regards Life.

The case mortality is high, probably something over 25 per cent. The most fatal period is the second week, about the eighth day. Of 135 fatal cases, collected from the literature, in which exact dates of onset and death are given, 15 per cent. died in the first week, 34 per cent. died in the second week, 15 per cent. died in the third week, 13 per cent. died in the fourth week, and 23 per cent. died later than the fourth week. The earliest fatal case was on the second day. Sudden death is by no means uncommon, especially when the medullary region is involved.

Prognosis in Various Types.

It is not possible to lay down any very definite rules for guidance. Just as it is difficult to classify this protean disease, so it is correspondingly difficult to prognose from early symptoms.

Mode of onset: Smith,¹⁰¹ U.S.A., suggests that a sudden onset is more grave than a gradual one. In this connexion, so much depends on the interpretation of the word "sudden." It is certain that severity of onset is no sure guide to prognosis. Cases with severe onset recover, and cases of mild and insidious onset end fatally.

Lethargy is thought by some to be of serious prognosis. Pecori¹⁰² finds a high mortality in his "soporose" cases. The term lethargy, however, is so wide, that without qualification it is of little value. Severe lethargy at onset is not necessarily of bad prognosis. On the other hand, lethargy which begins gradually and deepens day by day, is of serious import, especially if accompanied by rising temperature, profuse sweating, and incontinence, as was emphasised by Edwin Bramwell.⁵³ Gelma and Hanns¹⁰⁰ think the prognosis is better when sleep is light and waking easy.

Early stuporose lethargy in young children with meningitis-like symptoms is, in my experience, of serious import. The prognosis in cases of excitomotor type is very uncertain. When the "myoclonic" cases were first observed in 1919-20, by Sicard and Kudelski,¹⁰³ Boveri,¹⁰⁴ Ellis,¹⁰⁵ and others, the mortality amongst them was very high. Since that time similar cases of less severity have been common, and the gravity of this type as regards life is not so serious as was at first thought. Choreatiform types also may present any degree of severity. Severe delirium is a symptom of serious omen (Bassoe,⁹⁹ Pecori,¹⁰² Bonhoeffer,¹⁰⁶ and others). Cramer¹⁰⁷ thinks that insomnic cases are graver than lethargic.

Parsons¹³ from the official records finds that cases of generalised type without localisation (Type I.) are more fatal than other types. All are agreed that in few diseases is prognosis as regards life more uncertain and in none is it necessary to be more guarded.

Prognosis as Regards Complete Recovery.

Epidemic encephalitis has separated itself clearly from other infectious diseases by its numerous and peculiar later manifestations or residua. These are often so characteristic as to be retrognostic. "By their fruits ye shall know them" applies aptly to this disease. Many of these are so late in appearing that the percentage of them is an increasing one. They may be classified into (a) other residua, (b) Parkinsonism. The former may be considered under seven headings:—

(a) Other Residua.

1. *Mental Residua.*—These range from mere psychasthenic conditions to acute mania, sometimes of a most violent kind. In order to ascertain to what extent mental cases requiring certification had occurred as a result of this disease in England and Wales, I made inquiry from all the public asylums on this point. Thanks to the courtesy of those in charge, the following figures have been obtained.

Replies were received from 100 out of 111 asylums in England and Wales. In 80 of these no cases attributed to encephalitis lethargica had been admitted. In 20 asylums, 30 cases only had been admitted since 1918—when the disease was first recorded in this country. Of these 30 cases, the sexes were equally divided. Nine were under 20 years of age, 14 were over 30 years of age. In most of the cases (19) the attack of encephalitis occurred in 1920 or 1921. Six died, 12 recovered; in 9 there is no improvement; 7 of these are over 30 years of age. The types varied widely. The confusional and stuporose types appeared to run the most favourable course. It is gratifying to find that in this country, at any rate, the amount of mental disorder due to encephalitis and necessitating certification is not considerable.

2. *Moral Changes.*—If, however, the asylums do not see much of the ravages of this disease, the homes of the patients and even the police courts for juvenile offenders tell a different story. Whilst in adults "residua," in the form of "not the man he was before," "unable to concentrate," and so forth, are common, it is in the juvenile cases that moral changes are seen most markedly. The good child becomes a naughty child, the clever child a dunce! Restlessness, irritability, amounting to paroxysms of temper, greediness, aggressive behaviour, and morbid sexual tendencies are common results. In more severe forms thieving, suicide, and even homicidal tendencies have been recorded.

Cameron,⁶⁸ from the clinical point of view, and Shrubbsall,⁶⁸ from that of the medical school officer, have made it clear that many of these cases are merely exaggerated examples of the "difficult child," and that firm and judicious handling brings about marked improvement. This is no doubt true, but it must not be forgotten that the particular child has only become "difficult" since its illness, that it has often been a very "easy" child previously, and that the domestic machinery cannot readily be adjusted to meet such a change of disposition, especially when it coincides with convalescence from an alarming illness.

Many of the cases are, however, altogether beyond parental control. Auden,¹⁰⁸ Paterson and Spence,¹⁰⁹ and others have recorded such cases, more than one of which has reached the police courts. It thus becomes a medico-legal problem of considerable importance. In one of my cases the boy who was previously a clever scholar is now so aggressive and difficult that it is impossible for him to retain any situation.

3. *Nocturnal Excitement in Children.*—This peculiar residuum is very widespread. Pfaundler¹⁴² was the first to record a series of cases in Munich in 1920. Since then many cases have been seen in other parts. Happ and Blackfan¹¹⁰ reported many in America; Morley Fletcher,¹¹¹ Findlay and Shiskin,¹¹² Paterson and Spence¹⁰⁹ in this country. It may begin early in the disease or only after a considerable period of time. Towards evening, sometimes with remarkable punctuality (Marie and Lévy¹¹³) a change comes over the child. It becomes restless, excitable, and unmanageable. At bedtime this becomes worse and there is no suggestion of sleepiness. Sometimes the child sings, whistles, or makes queer noises, gets out of bed and runs about, until the morning is well advanced. It then falls into a heavy sleep which may last until midday. On waking, as a rule, all the excitement has passed off, and the child may appear almost normal during the afternoon, only to go through the same trouble as evening approaches. The condition is quite intractable to ordinary therapeutic measures and may persist for many months. It is spoken of occasionally as an inversion of the sleep-rhythm. This description is somewhat misleading. It is not merely that the hour of sleep is altered, but there is a definite mental excitement recurring each evening; this continues through the night, until the nervous centres are exhausted and the

sleep which results is followed for a few hours by an almost normal condition until the recurrence of excitement. This residuum is frequently associated with others, such as one of the respiratory residua, as in Morley Fletcher's case.¹¹¹

4. *Respiratory Residua*.—Respiratory disorders are concerned with the nervous mechanism of the act, not with the respiratory organs themselves. They may be present in the early stages also. Polypnoea has been frequently noted. In some cases this leads, as in physiological experiments on deep breathing, to tetany. Barker and Sprunt¹¹⁴ recorded such cases, and it occurred in my case seen in 1903 (vide supra). Cameron¹¹⁵ showed a tracing of this type which was obtained from a child with nocturnal excitement under his care. The periods of polypnoea were followed by prolonged apnoea in which the child became somewhat cyanosed. Marie, Binet, and Lévy¹¹⁶ have classified these respiratory residua into (a) changes in rhythm, polypnoea, bradypnoea, apnoea, periodic breathing, (b) spasmodic cough; (c) respiratory tics and abnormal rhino-laryngological sensations. The spasmodic cough may be of great violence and persistence. It, also, may be worse at night, as in a case recently under my care, associated with great increase in weight.

5. *Residual palsies* may occur, but they are much fewer and less marked than was originally anticipated would be the case. Their comparative rarity is in striking contrast to the results of poliomyelitis.

6. *Excito-motor Residua*.—The variety which this form of residuum can take is remarkable. Some of them are frequently associated with the Parkinsonian syndrome, and indeed are by some included in that.

Mlle. Gabrielle Lévy¹¹⁶ has recently published a monograph dealing with these phenomena very fully. They may take the form of choreatic, bradykinetic, myoclonic, or shaking movements. The term bradykinesia is used by Lévy in this connexion to indicate "large, slow, rhythmic global movements involving one or more limbs or the head and trunk." This definition has no relation to the use of the term by others to indicate the slowness of muscular action in Parkinsonians.

In most of these movements, which are involuntary and uncontrollable, rhythmicity is the characteristic. Sometimes the rhythm bears relation to the respiratory rate. Cruchet¹¹⁷ speaks of myorhythmia. Other movements which have been described include curious oscillatory movements of the lips in a lateral direction something like the movements of a rabbit's mouth. Cockayne⁶⁸ recently showed an example of this at the Royal Society of Medicine.

Another phenomenon, repeatedly seen, is a temporary inability to raise the eyelids. This may last for a few moments. There is no sign of any spasm of the orbiculares oculorum. In one of my cases, a boy with some Parkinsonian residua and a distinct perversion of moral character, this temporary blinking occurred when cycling with disastrous results to the machine. Automatic actions of various kinds have been described. Spasmodic tics, especially about the facial and masticatory regions, are not uncommon.

7. *Trophic Residua*.—Many cases of marked obesity following encephalitis have been recorded. In Barkman's¹¹⁸ case the man put on 42 kilos in weight in two years. This was accompanied by excessive sweating, loss of sexual power, and a feminine appearance. Bertolani's¹¹⁹ patient, a young woman of 23, gained 17.5 kilos in 15 months. Stiefler¹²⁰ saw a girl of 13 who gained 21.3 kilos in four months. One of Livet's¹²¹ patients, also a young woman, gained 13 kilos in 12 months. The interest of these trophic residua lies in their possible relation to hypophysis disorder, and the occurrence of polyuria, and also lethargy. In one of the post-encephalitic cases reported from the asylums a considerable growth of hair occurred on the back whilst she was an inmate, disappearing as the mental condition subsided.

(b) *Parkinsonism*.

This term, which originated in the French school, will be used here to signify those post-encephalitic residua which present features which are found in presenile paralysis agitans. As a matter of fact, many of these cases of Parkinsonism have as their chief signs the immobile facies, to which Parkinson, in his original essay in 1817, made no reference, and plastic rigidity, to which his allusion is very slight and incomplete. In spite of this, the term is convenient, and it is desirable, at present, to keep the post-encephalitic and the ordinary presenile forms distinct from each other for descriptive purposes until more is known of their relations to one another.

Before the present appearance of epidemic encephalitis cases of paralysis agitans below 40 years of age were very uncommon. Willige,¹²² in 1911, was able to collect only about 20 such cases from the literature up to that date. Of these, the earliest age of onset was 18 to 20 years. At the present moment there are, probably, more than that number of complete cases, as a result of encephalitis, in children under 15, in this country. On the continent the numbers are probably even greater. Goldflam¹²³ speaks of "an epidemic of paralysis agitans" in Warsaw. It is estimated that 25 per cent. of the cases suffer from this residuum. It may occur in two forms, "early" and "late Parkinsonism."

Early Parkinsonism.—The "early" form may appear within a few days of the onset of symptoms. In one of my first series of cases,¹²⁴ a woman, aged 56, "the facial expression was so suggestive of 'Parkinson's mask' that I thought at first she must have paralysis agitans." This was within a week or two of onset of symptoms. Buzzard,¹²⁵ however, was the first to describe a complete picture of early Parkinsonism in a man who began with encephalitis ten days previously. Kinnier Wilson¹²⁶ also recorded a case beginning in the 1918 outbreak. In more recent outbreaks the number of these early cases has been very large.

"Late" Parkinsonism.—The "late" form may occur only after a long interval. Souques,¹²⁷ Girardi,¹²⁸ Rathery and Cambessédès¹²⁹ described cases in which the interval was 9 to 12 months. Guillaïn and Gardin,¹³⁰ Sicard,¹³⁵ and Souques,¹³⁶ 15 months; Parkes Weber,¹³¹ Renaud,¹³² and Bing,¹³³ 18 months; McAlpine,⁶⁸ 3½ years. This interval may be free from symptoms of any kind (De Lisi¹³⁴). In a few cases the evidence of this is striking. In Renaud's case¹³² the man was on military duty for several months after recovery from encephalitis. In Guillaïn and Gardin's¹³⁰ case the patient during the interval served as mechanic on an American liner and whilst in America worked as cowboy, labourer, and post-office official. Meyer¹³⁷ records the case of a woman who had encephalitis, recovered, became pregnant a year later, and Parkinsonian at the sixth month of pregnancy. Lévy¹¹⁶ reports a similar series of events two years after encephalitis. Parkes Weber¹³¹ was the first to call attention to late Parkinsonism following an ambulatory attack. On the other hand the interval, even if long, may be not one of apparent recovery, but some one or more of the other residua are present, upon which Parkinsonism is grafted. Probably this is the more common course.

CLINICAL DIFFERENCES BETWEEN PARKINSONISM AND THE PRESENILE FORM OF PARALYSIS AGITANS.

These may be classified under three headings: (1) Parkinsonism is often something less than paralysis agitans; (2) it is often something more than paralysis agitans; (3) it differs in its mode of onset and its manner of progress.

1. The feature which is usually absent or minimal is the typical pill-rolling fine tremor. Although present in a few cases, it is exceptional. Even where the general affection involves the whole trunk and limbs, the tremor may not be present in this form.

Another most common feature is the limitation of parts affected. Amongst my cases at the present, one boy has an immobile facies and head, otherwise nothing, below the neck he is a normal active person; one woman has immobile facies and rigid right arm; another has immobile facies, rigid left arm; a man has complete rigidity of the face and all the limbs with extreme slowness of action; another man has immobile facies and festination, but his hands are hardly affected; he can take a watch to pieces, clean it, and put it together again. Whilst in paralysis agitans it is not unusual for one limb or one side to be affected at first, yet as a rule it extends fairly soon. In these cases as the years go on such extension does not seem to be occurring.

2. The frequency of other residua in association with Parkinsonism is common. Such residua may be of any of the above described forms. In fact, the combinations are at times bewildering. In one of my cases, a girl, five years after the attack, there are now present: mask-face, muscular jerks, recurring attacks of lethargy, spasmodic fixations of the jaw, unequal pupils, nystagmus, loss of convergence, nocturnal restlessness and excitement, left foot-drop—with inversion. With regard to this curious last-named feature Collier¹³⁸ has shown a very similar case in a woman of this type in whom foot-drop was also present.

3. As regards onset and progress, it is obvious from what has already been said that this is very different from what is familiar in presenile paralysis agitans. The mask-face is, as a rule, of somewhat slow and later development in paralysis agitans. In Parkinsonism it is early and often almost sudden in appearance. As to course and progress, it is yet too early to know how these cases of Parkinsonism will eventuate; but at least some of them in this country have shown no tendency to get worse whilst under observation for four or five years, and a few have shown distinct if slight improvement.

Bing and Staehelin,¹³⁹ out of 73 cases, saw Parkinsonism chiefly in the lethargic forms, and none in those cases in which excito-motor phenomena predominated.

MORBID ANATOMY OF RESIDUA.

The question as to the site and nature of the processes which give rise to the various later manifestations is one which is at present receiving widespread attention on all sides. Whilst much of this is still unsettled, and even in certain respects controversial, certain facts have come to light which are of considerable interest.

In 1919 Buzzard and Greenfield²⁷ in this country described "calcareous degeneration of the vessel walls and clots" in the brain of a fatal case. In the basal ganglia there were "very many calcareous deposits in the walls or lumen of larger thrombosed vessels," "depositions of lime salts in perivascular bleedings," &c. In one specimen the vessel walls were so thick and calcareous as to cause trouble in cutting sections. Buzzard at that time suggested that the late clinical complications might be due to secondary vascular disturbances. In 1921 Dürck¹³⁹ examined the brains of 15 fatal cases of epidemic encephalitis. He found marked calcification in 12 of them. The ages of the patients ranged from 20 to 60 years; duration of disease, eight days to five weeks. There was no ordinary athero-sclerosis of the cerebral vessels in any of them. The deposits of calcium were found in three forms: (a) less commonly, as incrustations around ganglion cells; (b) as free flakes in the tissue substance; and (c) as deposits in the vessel walls. The two latter were very much the commoner. These changes were well marked in a case which had only lived for eight days. This early appearance may explain the occurrence of early Parkinsonism. It is comparable, in rapidity of occurrence, to the similar calcium deposits which Herzog¹⁴⁰ found in the tunica media of the small and middle-sized vessels of the brain within 4 to 11 days after poisoning by coal-gas. A similar early calcifica-

tion is found in the renal tubules after poisoning by mercurial salts.

Another point which Dürck calls attention to is the sharp limitation of calcium deposition to certain circumscribed areas. These do not correspond with the areas of highest toxi-infectious damage. There may, or may not, be preceding hyaline changes in the vessel wall. The calcification is found chiefly in the media and inner part of the adventitia. The intima is only involved later if at all. These findings have been confirmed by others. Schminke,¹⁴¹ in two cases of encephalitis in children, attributed nodules of softening to calcification of vessels. Symonds²⁸ saw marked hyaline changes in Parkinsonism with some calcification in the corpus striatum. Greenfield (personal communication) has recently found extensive calcification in parts of the globus pallidus in a similar case. He also notes the limitation of these changes to circumscribed areas.

It is thus evident that the original observation of Buzzard and Greenfield, in 1919, that acute calcification of the cerebral vessels is produced by epidemic encephalitis has been amply confirmed, and that, as Buzzard suggested, the residual troubles may be due to interference with the circulation. As yet the exact site or sites, interference with which leads to Parkinsonism in the one case and paralysis agitans in the other, has not been agreed upon. The work of Kinnier Wilson on progressive lenticular degeneration, O. and C. Vogt and Ramsay Hunt on paralysis agitans points to changes in the corpus striatum. Trétiakoff, Souques, and Lhermitte, however, find constant changes in the substantia nigra in that disease. Whether either or both these sites are necessarily involved remains to be settled.

RELATION TO CHOREA.

The similarity of some encephalitic cases to Sydenham's chorea gravis has been already referred to. The connexion between the two may lie in the site affected and the nature of the lesion. Greenfield and Wolfsohn^{106b} recently reported upon the microscopic changes in the brain from a case of acute chorea under R. Hutchison. The child died ten days after onset. Vegetations were present on the endocardium. They found the chief lesions in the head of the left caudate nucleus, but the whole of the basal ganglia, cortex, and centrum ovale were affected to some extent. The congestion of the vessels, the emergence of small round cells from the walls of the capillaries, and the diffuse neuronophagy resembled very closely the picture of encephalitis lethargica in the earlier stages, which Greenfield²⁷ has described.

CONCLUSION.

Considering its comparatively light incidence upon the population this disease has caused a large amount of death and suffering. As yet no means of preventing or checking it is known. It is to be hoped that some increased knowledge of many obscure nervous disorders may arise from the many stimuli to their investigation which it has provided.

In conclusion, I desire to express my grateful thanks to each and all of many friends who have given valued assistance in preparing these lectures, particularly to the Ministry of Health for much help, and, not least, for the invaluable bibliography contained in its recent report.

REFERENCES.

1. von Economo, C.: *Wien. klin. Wochen.*, 1917, xxx., 581.
2. Cruchet, R., Moutier, et Calmette: *Bull. et mém. Soc. méd. de Hôp. de Paris*, 1917, xli., 614-6.
3. Crookshank, F. G.: *Influenza*, London, 1922; also *Proc. Royal Soc. of Medicine (Sec. Med.)*, 1919, xii., 1-21, and *Chadwick Lecture*, 1918; *Med. Press and Circular*, 1918, ii., 291, 310, and 329.
4. Gayet: *Arch. de physiologie*, 1875, 431.
5. Bozzolo: *Rev. med. di Firenze*, 1900, Jan. 20th.
6. Achard and Palsseau: *Bull. et mém. de la Soc. méd. des Hôp. de Paris*, 1904, 425.
7. Raymond and Claude: *Semaine médicale*, 1909, Dec. 8th.
8. Souques: *Revue neurologique*, 1922, 304.
9. Watson, G. W.: *THE LANCET*, 1912, i., 1469

10. Comby : Arch. de méd. des enfants, Paris, 1907, x., 577.
11. Gordon : THE LANCET, 1913, ii., 276.
12. L.G.B. Report, No. 121, N.S., 1918.
13. Ministry of Health, Report No. 11, 1922.
14. Harris, W. : THE LANCET, 1918, i., 568.
15. Batten and Still : Ibid., 1918, i., 636.
16. Netter, A. : Bull. et mém. Soc. méd. des Hôp. de Paris, 1918, xlii., 307.
17. Sterling : Bull. de l'off. internat. d'hyg. publique, 1922, xiv., 815.
18. McIntosh : Brit. Jour. Exper. Pathol., 1920, i., 257.
19. McIntosh and Turnbull : Ibid., p. 89.
20. Krause : Deutsch. med. Woch., 1922, 1713.
21. Fyfe : THE LANCET, 1923, i., 379.
22. Mercier, Andrieux, and Bonnaud : Bull. Acad. de Méd., Paris, 1921, lxxxv., 625.
23. Santi : Policlin. Roma, 1920, Sez. Prat., xxvii., 869.
24. Novaes e Sousa (quoted by Jorge : Bull. de l'office internat. d'hygiène publique, Paris, 1920, xii., 1275).
25. Levaditi, Harvier, and Nicolau : Annales de l'Institut Pasteur, 1922, xxxvi., 61-148.
26. Hallé : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 39.
27. Buzzard and Greenfield : Brain, 1919, xlii., 305.
28. De Laroche : Paris Médicale, 1920, xxxvii., 229.
29. Reece, R. J. : L.G.B., 48th Annual Report, 1919, 66.
30. Lortat Jacob : Bull. et mém. Soc. méd. des Hôp., 1920, xlv., 707.
31. Roger et Blanchard : Ibid., 1921, xlv., 40.
32. Netter, A. : Bull. Acad. de Méd., 1920, lxxxiii., 373.
33. Kling, Davide, and Liljenquist : C.R. Soc. de Biol., Paris, 1921, 815.
34. Netter : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 38.
35. Lemierre : Bull. et mém. Soc. méd. des Hôp. de Paris, 1920, xlv., 1628.
36. Netter, Cesari, and Durand : C.R. Soc. Biol., Paris, 1921, lxxxiv., 854.
37. Kling : Hygeia, 1922, 913.
38. Lord, R. E. : THE LANCET, 1918, i., 715.
39. Boyd : Canad. Med. Assn. Journal, 1920, x., 117.
40. Lemoine : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 321.
41. Dargelin and Plazy : Ibid., 326.
42. Dufour : Ibid., 1920, xlv., 263.
43. Clerc Foix and Mercier des Rochettes : Ibid., 1921, xlv., 522.
44. Bing and Staehelin : Schweiz. med. Woch., 1922, Feb. 9th.
45. Lhermitte : Presse Médicale, Paris, 1920, xxviii., 916.
46. Rosenow : Jour. of Infec. Dis., 1923, xxxii., 41, 72.
47. Rosenow and Jackson : Ibid., p. 144.
48. Loewe, Hirschfeld, and Strauss : Ibid., 1919, xxv., 378.
49. Cleland and Campbell : Brit. Med. Jour., 1919, i., 663.
50. Breinl : Med. Jour. Austral., 1918, i., 209.
51. Flexner : Bulletin Johns Hopkins Hosp., 1920, xxxi., 249.
52. Marie and Trétiakoff : Bull. et mém. Soc. méd. des Hôp., Paris, 1918, xlii., 475.
53. Bramwell and Miller : THE LANCET, 1920, i., 1152.
54. Wilson, S. A. K. : THE LANCET, 1918, ii., 7, 91.
55. Da Fano and Ingleby : Proc. Roy. Soc. of Med. (Pathol.), 1919, xii., 42.
56. Da Fano : Brit. Med. Jour., 1921, i., 153 ; Jour. of Path. and Bact., 1923, xxvi., 85.
57. Hume, Natrass, and Shaw : Quart. Jour. of Med., Oxford, 1921-22, xv., 131.
58. Guillaïn : Bull. et mém. Soc. méd. des Hôp. de Paris, 1920, xlv., 1238.
59. Schmidt, R. : Mediz. Klinik, 1921, xvii., 518.
60. Walshe, F. R. M. : Med. Science, 1920, iii., 51.
61. Gelpke : Schweiz. med. Woch., i., 825.
62. London County Council Annual Medical Report.
63. Buzzard : Proc. Roy. Soc. of Med. (Neurol.), 1919, xii., 56.
64. Marinesco : Rev. Neurol., Paris, 1921, xxviii., 1.
65. Abrahamson : Jour. Nervous and Mental Dis., N.Y., 1920, lli., 193.
66. Laporte and Rouzaud : Bull. et mém. Soc. méd. des Hôp. de Paris, 1920, xlv., 422.
67. Näef : Münch. med. Woch., 1919, lxvi., 1019.
68. Jewesbury et al. : THE LANCET, 1923, i., 228.
69. Genet : Lyons Médicale, 1920, exxix., 721.
70. André-Thomas and Jumentiet : Rev. neurol., Paris, 1922, xxix., 447.
71. Christin : Ibid., 1124.
72. Byschowski : Neurolog. Zentbl., January, 1921.
73. Schmidt : Mediz. Klin., 1921, xvii., 210.
74. Denyer and Morley : Brit. Med. Jour., 1921, i., 191.
75. Kahn, Barbier, and Bertrand : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 787.
76. Sarkies : THE LANCET, 1921, i., 171.
77. Grossmann : Jour. Nervous and Mental Dis., 1922, lv., 33.
78. Fragnito : Policlin. Roma, 1920, Sez. prat., xxvii., 515.
79. Edgeworth et al. : Bristol Med. Chi. Jour., 1920, xxxvii., 25.
80. Davis, T. K. : Jour. Nervous and Mental Dis., 1920, lli., 417.
81. Petren : Rev. neurol., Paris, 1921, xxviii., 686.
82. Grenet : Gaz. des Hôp., Paris, 1919, xcii., 155.
83. Cohn, T. : Neurolog. Centrbltt., 1920, xxxix., 260.
84. Sarbo, v. : Ibid., 198.
85. Stern : Die epidem. Enzephalitis, Berlin, 1922.
86. Bénard : Bull. et mém. Soc. méd. des Hôp. de Paris, 1922, xlv., 553.
87. Roger : Ibid., 1920, xlv., 482.
88. Rathery and Bonnard : Ibid., 300.
89. Eschbach : Ibid., 1921, xlv., 1119.
90. Bassoe : Arch. Neurol. and Psych., 1921, v., 215.
91. Petit, G. : Jour. de Psych. norm. et pathol., Paris, 1922, xix., 182.
92. Tinel and Dupouy : Bull. et mém. Soc. méd. des Hôp. de Paris, 1923, xlvii., 306.
93. Douzelot and Krebs : Ibid., 325.
94. Strauss, Hirschfeld, and Loewe : N.Y. Med. Jour., 1919, cix., 772.
95. Doerr and Schnabel : Schweiz. med. Woch., 1921, li., 469.
96. Loewe and Strauss : Proc. N.Y. Path. Soc., 1920, xx., 18.
97. McIntosh : Brit. Jour. of Exp. Path., 1923, iv., 34.
98. Blanc and Caminopetros : C.R. Soc. de Biol., Paris, 1921, lxxxiv., 629.
99. Grüter : Klin. Monatsbl. f. Augenhe., 1920, lxv., 398.
100. Gelma and Hanns : Ann. de Méd., Paris, 1921, xix., 17.
101. Smith, H. F. : Public Health Reports, U.S.A., 1921, xxxvi., 207.
102. Pecori : Ann. d'Ig. Roma, 1921, xxxi., 32.
103. Sicard and Kudelski : Bull. et mém. Soc. méd. des Hôp. de Paris, 1920, xlv., 94.
104. Boveri : Brit. Med. Jour., 1920, i., 570.
105. Ellis, A. W. M. : THE LANCET, 1920, ii., 114.
106. Bonhoeffer : Deutsch. med. Woch., 1921, xlvii., 229.
- 106a. Stertz : Berlin Klin. Woch., 1920, lvii., 907.
- 106b. Greenfield and Wolfsohn : THE LANCET, 1922, ii., 603.
107. Cramer : Rev. méd. d. l. Suisse Romande, 1920, xl., 277.
108. Auden, G. : Brit. Med. Jour., 1922, i., 165.
109. Paterson and Spence : THE LANCET, 1921, ii., 491.
110. Happ and Blackfan : Jour. Amer. Med. Ass., 1920, lxxv., 1337.
111. Fletcher, H. M. : Brit. Jour. Child. Dis., 1921, xviii., 69.
112. Findlay and Shiskin : Brit. Med. Jour., London, 1920, ii., 8, 20.
113. Marie, P., and Lévy : Rev. neurol., 1922, xxix., 570, 1233.
114. Barker and Sprunt : Tr. Ass. Amer. Phys., 1921, xxxvi., 305.
115. Marie, Binet, and Lévy : Bull. et mém. Soc. méd. des Hôp. de Paris, 1922, xlv., 1075.
116. Lévy, Mlle. : Manifestations tardives de l'encéphalite épidémique, Paris, 1922.
117. Cruchet, R. : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 1382.
118. Barkman : Acta med. Scandinav., 1922, lvi., 188.
119. Bertolani, A. : Riv. sper. di freniat., 1921-22, xlv., 467.
120. Stiefler, G. : Monatschr. f. Psychiatr. u. Neurol., 1921, i., 123.
121. Livet, L. : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 656.
122. Willige, H. : Zeitschr. f. d. ges. Neurol. u. Psychiatr., 1911, iv., 520.
123. Goldflam : Deutsch. Zeitschr. f. Nervenhe., 1922, lxxiii., 1.
124. Hall, A. J. : THE LANCET, 1918, i., 568, and 1922, i., 526.
125. Buzzard : Ibid., 1918, i., 616.
126. Wilson, S. A. K. : Proc. Roy. Soc. Med. (Clin.), 1919-20, xlii., 65.
127. Souques : Rev. neurol., 1921, xxviii., 534.
128. Girardi, P. : Morgagni, Milano, 1922, lxiv., 81.
129. Rathery and Cambessèdes : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 1051.
130. Guillaïn and Gardin : Ibid., 676.
131. Weber, F. Parkes : Clin. Jour., London, 1920, xlix., 342.
132. Renaud : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 1651.
133. Bing, R. : Schweiz. med. Woch., 1921, li., 4.
134. De Lisi : Policlin. Roma., 1921, xxviii., 484, 505.
135. Sicard, J. A. : Bull. et mém. Soc. méd. des Hôp. de Paris, 1921, xlv., 1647.
136. Souques : Rev. neurol., 1922, xxix., 63.
137. Meyer, E. : Deutsch. med. Woch., 1922, xlviii., 341.
138. Collier, J. S. : Proc. Roy. Soc. of Med., 1920-21, xiv. (Neurol.), 45.
139. Dürk, H. : Zeitschr. f. d. ges. Neurol. u. Psychiatr., 1921, lxxii., 179.
140. Herzog : Münch. med. Woch., 1920, lxvii., 558.
141. Schminke : Zeitschr. f. d. ges. Neurol. u. Psychiatr., 1920.
142. Pfandlender : Münch. med. Woch., 1920, lxvii., 885.
143. Poynton, F. J. : Brit. Jour. of Child. Dis., 1920, xvi., 156.

THE IMPORTANCE OF PROTEIN HYPERSENSITIVITY

IN THE DIAGNOSIS AND TREATMENT OF A SPECIAL
GROUP OF EPILEPTICS.

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THE possibility of food poisons or food susceptibility as a factor in the aetiology of certain forms of epilepsy has been advocated for many years. The basic idea is, therefore, by no means new, and we do not wish to claim any originality. The subject of protein hypersensitivity and its relation to asthma, urticaria, migraine, &c., has engaged the attention of one of us (R. L. M. W.) for several years. The application of such tests to cases recognised as a special type of epilepsy was suggested by Sir Maurice Craig over two years ago. The clinical aspects of such a group were recorded by him, and he has kept in touch with all the cases investigated. The whole subject teems with interest and offers a wide field for further research along certain definite lines. We submit the results of these investigations with due regard to our inability to interpret them in the light of our present knowledge, which inability we regard as inevitable, although it is a matter for regret. The research is being continued,¹ and this paper, therefore, is in the nature of a preliminary communication.

Protein Hypersensitivity Tests.

All the tests have been carried out with proteins prepared by R. L. M. W. under certain definite conditions. In many cases pure crystalline proteins have been isolated from various foodstuffs, and these have been grouped together. As a result we have five groups of proteins which are used for purposes of testing food protein sensitivity. These groups consist of:—

(1) Egg proteins: crystalline egg albumin of various types; (2) meat and fish proteins: from beef, mutton, veal, chicken, game, fish, shell-fish, &c.; (3) milk of various animals; (4) vegetable proteins: ground-nut, vegetables, fruits, nuts, legumes; (5) cereals, including all the common types of cereal proteins; (6) peptone; (7) control: a solution of decinormal sodium hydroxide.

These proteins, as far as possible, are kept in the solid form in a refrigerator and weighed out into sterile test-tubes before use. They are dissolved in freshly prepared decinormal soda, 20 mg. to 10 c.cm. of soda being the usual strength for the purposes of the tests. As the solutions deteriorate on standing, they are made up fresh every day, especially in the summer months, and, as far as possible, all the patients are tested on the same day. The tests are done on the forearm by first cleansing the flexor surface with alcohol or ether and applying a small drop of the testing solution. The skin surface is just broken by gentle scratching with a blunt-pointed scalpel or needle, care being taken to avoid any bleeding. The six or seven tests are applied to the skin, and a control with decinormal sodium hydroxide is also carried out. A positive reaction appears obvious almost immediately after the scratching has been completed, since in 15 seconds an area of hyperæmia appears, which spreads outwards and usually extends over an area the size of half-a-crown.

¹ The research was extended subsequently to Hanwell Mental Hospital, where the patients were under controlled conditions.

After leaving the protein solutions in contact with the broken skin for 10 minutes they are washed off and the results of the skin test noted. In cases where a positive reaction has occurred a small but definite wheal appears, which still retains its hyperæmic area around it. The negative tests and controls often disappear so rapidly that it is difficult to see where they have been applied. To make certain of the positive reaction we usually apply a clean glass microscope slide to each test and note whether the hyperæmic area can be blanched by pressure alone. In true positive reactions this does not occur.

The question of the best time to do the tests is of the greatest importance. Our observations tend to show that the tests succeed best when the patient is not fatigued. It was found that the sensitivity of patients to proteins varies considerably, according to the time when they are carried out. It so happened that two epileptics were tested immediately before a fit, and in both cases they reacted strongly to proteins (one to the five groups of proteins, the other to three groups). After the fits the sensitivity to a particular protein may disappear, but the time that elapses before the patient becomes desensitised varies. An epileptic has been found to be negative to all proteins within 3½ hours after a fit, while in others the time is considerably longer. In those patients who have fits over a period of some days we have found that at the commencement of the attack they remain sensitive, but at the end of the attack they no longer react. The best time, therefore, is just before an attack (though immediately before an attack a patient may be hypersensitive and may react to all proteins) or as long an interval as possible after the previous one.

Treatment.

Treatment comes under two headings. In private practice the ideal method can be applied, which consists in removing the offending protein or proteins from the patient's dietary, and, if necessary, in desensitising the patient by the administration of protein vaccines in small and graduated doses. In a mental hospital, where patients are segregated together, it is often found difficult to eliminate the particular food, though it is hoped that this may be tried in certain cases. Peptone² given by the mouth is of value to patients sensitive to that particular peptone. Cereal vaccines are being given to the patients at Hanwell, who have been found to be sensitive to cereals, but it is too early to report any definite results at present.

Summary of Results.

The tests for protein hypersensitivity have been carried out on sane patients in private practice and on patients in a mental hospital suffering from epilepsy with insanity. The patients in private practice were selected from clinical experience as a general rule. They appear to be quite healthy persons, usually inclined to obesity, and not excitable or markedly unstable. This grouping of the symptoms was described by Sir Maurice Craig as characteristic of the particular type discussed in this paper. It enabled him to select the right type of case for investigation, as shown by the frequency of positive results to the protein skin tests in his cases. This class does not respond to bromides; this observation alone may suggest the group to which the patient belongs. Again, many patients complain of digestive disturbances and are brought by anxious relatives for an opinion as to the diet the patient should be given. The patients at Hanwell suffering from epilepsy with insanity were not selected. All epileptics, except the very old and those with congenital imbecility, were examined. Tests were carried out on 122 epileptics

² This peptone is given in the form of gelatin capsules, each containing 1 gr. of peptone. One gr. twice a day after food has been found sufficient for this purpose. It is most important to give it after food, not before. Further, some cases react very strongly, so that the dose has to be diminished or suspended for some days. The best preparation we have found is that known as medicinal peptone.

(68 females and 54 males). Of these, 46 (28 females, 18 males) gave positive reactions to different proteins, while 76 (40 females and 36 males) did not react at all. These results are in accordance with our contention that only a certain type of epileptic shows protein hypersensitivity. Only a very few in this series corresponded clinically to the type described by Sir Maurice Craig. In this series of epileptics tested at Hanwell it was found that 28 patients reacted to peptone, 15 to cereals, 15 to fish and meat, 9 to vegetables, 9 to eggs, and 3 to milk. A large number of non-epileptics react to protein hypersensitivity also, and this has been observed in patients suffering from asthma, urticaria, migraine, &c. At Hanwell control tests were performed on 100 persons, of whom 13 were staff, and 70 were cases of dementia præcox, the remainder consisting of other types of insanity. All the tests proved negative, with the exception of four cases of dementia præcox, who reacted slightly to peptone.

The result of these observations has shown conclusively that in some cases where it has been possible to adjust the diet on the basis of skin tests, no further treatment has been necessary. The work carried out at Hanwell has emphasised the difficulties of the dietetic treatment, and made necessary the production of a reliable substitute, but so far we have not been able to fix the dosage suitable for each individual case.

Peptone was given orally to 24 patients. In some cases the fits have become less frequent, and, in a small proportion of cases, there has been some mental improvement as well. In two cases the peptone made them decidedly worse—i.e., they became confused and "lost"; after the treatment by peptone it was found that some patients were no longer sensitive to that particular peptone. We found that some patients reacted more favourably to peptone when the dose was reduced from 2 gr. twice a day to 2 gr. once a day. The control of the fits and the associated mental condition does depend to a large extent on the dosage of peptone given, and in this respect resembles bromide treatment. It is possible that, with smaller doses, the patients may be controlled just in the same way as with bromides in certain types of epilepsy. With regard to the length of time the treatment should continue, we are at present unable to give a satisfactory answer. Again, we cannot say when a patient exhibiting an idiosyncrasy to one or more foods can with safety resume a normal diet.

The tests serve as a guide not only to diagnosis, but also to treatment. Those patients who have shown signs of improvement with peptone are usually those who have recently been admitted to the Mental Hospital. This can possibly be explained by the fact that the central nervous system is not damaged to the same extent as in a patient with a prolonged history of epilepsy. The difference in the results obtained in private practice, as compared with those in asylum practice, is no doubt due to difficulty of controlling the diet in the latter and the actual deterioration caused to the central nervous system through constant seizures.

This is one reason for urging the importance of early diagnosis of this type of epilepsy in the hope of preventing further attacks. That there is foundation for this would appear to be well illustrated by the cases which we have cited. It seems to us that by the application of the protein skin tests we have valuable confirmatory evidence of the possibility of a case of epilepsy falling into this group. The more our knowledge is extended, and the more we can group accurately, so much the better for treatment. Our special group is clearly one which has attracted attention throughout the ages. Since this type of epilepsy begins in early life, the secret of success is early diagnosis. In asylum practice this is impossible, and so vitiates good results. The diagnosis and treatment by means of skin tests, peptone, and diet applies only to one special type, and we do not wish to convey the impression that we have a panacea for all types of epilepsy. As to the mode of action of the

proteins, certain explanations offer themselves to us, but we consider them far too speculative with our present knowledge. The condition known as migraine, and its association with food poisons and food idiosyncrasy, is of particular interest in this connexion, and its ready response to dietetic treatment has been observed by us. The production of epileptic seizures in one group and attacks of migraine are so closely allied as to suggest a common pathological change in the two conditions.

Illustrative Cases.

The following are illustrative cases:—

CASE 1.—Male, aged 37, under care of Sir Maurice Craig. Fits began at 29; has had 14 fits in eight years. When first seen and tested, June 17th, 1921, was found to be sensitive to egg proteins. This reaction was very definite and coincided exactly with the history, and with the patient's natural dislike of eggs. A survey of the 14 fits, and their time of occurrence, gave clear evidence of the close connexion with eggs in the diet. On restriction of diet by exclusion of eggs in all forms only two fits occurred, and these were traced to the patient taking custard by accident. For nearly a year this patient has been quite free from fits, has had no bromides or sedatives of any kind, and has been able to carry on his work without interruption and no signs of impending fits.

CASE 2.—Male, aged 16½ years, under care of Sir Maurice Craig. Fits commenced at 12 years; he has suffered from repeated seizures ever since. Three weeks before being tested had a fit. The tests showed a definite sensitivity to milk protein. The attack three weeks previously followed on a long walk at the end of which he felt thirsty and consumed two glasses of milk at a dairy on his way home; the fit began just one hour after he had consumed the fresh milk. The patient was not aware of any idiosyncrasy to milk, but on a diet free from milk has had no further attacks, and is still under treatment.

CASE 3.—Female, aged 15. Tested on June 10th, 1922, she reacted to vegetables, fruits, and cereals. On a diet free from these she has only had one fit since, and this occurred after she had been given salad by mistake.

CASE 4.—Female, aged 21. Has suffered from fits for some years. In association with the fits she has urticaria. Appears quite healthy and is inclined to obesity. Tests showed a well-marked reaction to cereals, and also to peptone. Since commencement of treatment by diet and peptone has had two attacks of grand mal, traceable to errors in diet, occurring when she was over-fatigued. There were no epileptic equivalents after these two attacks, which were of short duration, and mental recovery was much more rapid than previously. Since August 30th has been quite free from attacks, and is now much better. Under bromide treatment for many years, without any influence over the fits. In addition she has taken luminal, 2 gr. nightly, for some time without effect in reducing either the number or severity of the attacks.

CASE 5.—Male, aged 5½, under care of Sir Maurice Craig. Suffered from petit mal for three years, uncontrolled by bromides. Was found to be sensitive to eggs, and also to vegetables. These articles of food were found to be the chief constituents of his diet; on their removal fits became less, and finally disappeared. There have been no attacks for nearly a year, and the improvement in the boy's condition, both physical and mental, is very well marked. With the exception of a slight tendency to excitability, he appears to be a normal healthy boy.

CASE 6.—Male, aged 14, under care of Sir Maurice Craig. His first seizure, 15 months previously to being seen, was severe and accompanied by signs and symptoms which led to the diagnosis of ptomaine poisoning. Skin tests showed him to be sensitive to vegetables and fruits; his diet was adjusted accordingly, and he remained free from fits for nearly six months. A severe seizure followed the eating of mushrooms; during this attack, the patient was re-tested, with negative results. Examinations of the blood, urine, and stools gave no evidence of pancreatic or hepatic insufficiency. The patient is still under treatment, and so far has had only one attack, of short duration.

CASE 7.—Female, aged 5½, under care of Sir Maurice Craig. Had attacks of petit mal with great regularity since 1½ years of age. The tests showed a very definite sensitivity to cereal proteins. The mother, who proved an admirable witness, stated that whenever she gave the child oatmeal her stomach became enormously distended and a seizure followed. Removal of all cereals from diet followed by complete disappearance of distension and petit mal; this condition is maintained after 18 months without any further treatment, and more particularly exclusion of bromides.

Illustrative Cases of Patients Treated with Peptone.

CASE 8.—Female, aged 39; tests showed definite sensitivity to peptone and cereals. Peptone was given, 2 gr. b.d., from June 6th, 1922. At first the patient became very lost, confused, and spiteful; since August she has improved both mentally and physically, and has put on 6 lb. in weight. She is neither lost nor spiteful now, and is working. Fits are less frequent. Does not now react to peptone.

CASE 9.—Female, aged 27; showed sensitivity to peptone and, very markedly, to cereals. Two gr. peptone b.d. from June 6th, 1922. Worse on treatment at first; she became very confused, troublesome, and depressed. Is now much brighter mentally, but continues to have fairly frequent attacks of petit mal, though by no means so many as she had previously.

CASE 10.—Female, aged 33; tests showed sensitivity to fish and meat and peptone. Peptone 2 gr. b.d. from June 6th, 1922. Patient subject to frequent screaming attacks; during first fortnight of treatment she became extremely abusive, and mistook identities, but she was free from screaming attacks. In August she was very much better, but the screaming attacks returned, though not so frequent. The fits are less frequent, and mentally she is much clearer than she used to be. When tested last, on Oct. 22nd, she failed to react to peptone, but still reacted to fish and meat.

CASE 11.—Male, aged 27; tests showed a sensitivity to peptone, given orally 2 gr. b.d. from June 6th, 1922. Mentally he remains the same, but his fits are fewer. He used to have fits in batches, but since treatment has not had a batch.

CASE 12.—Male, aged 37; tests showed a sensitivity to peptone and cereals. Peptone 2 gr. from June 6th, 1922. At first the fits became more frequent, but now they are less. He is not so irritable, and there is little confusion after fits. Mentally he has improved.

CASE 13.—Male, aged 19; tests showed sensitivity to peptone and cereals. Peptone given from Sept. 14th, 1922. From being in a state of gross confusion he was able to get up, and was working within a week of the treatment being started. His fits are less frequent, but recently he has had a relapse, and died in status epilepticus.

We would express our indebtedness to Sir Maurice Craig for the help and advice he has so willingly given us, and also for his encouragement and interest. In allowing us to carry out the investigations at Hanwell, we would offer our grateful thanks to the committee of the Hanwell Mental Hospital, and to the medical superintendent, Dr. A. W. Daniel. To the nursing staff of the hospital we owe our indebtedness for the careful records they have kept of the patients under treatment, and for their hearty coöperation.

SOME CONGENITAL ANOMALIES OF THE EYE

AND THEIR CONFUSION WITH ACQUIRED CONDITIONS.¹

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THE eye, in common with the rest of the body, is not exempt from the liability to occasional imperfect or aberrant development, with this difference, however, that whereas congenital malformations in other parts, such, for instance, as hare-lip, spina bifida, or imperforate anus, are usually self-evident as errors of development and easily diagnosable, the lesser abnormalities of the eye may sometimes closely simulate pathological states. Failure to recognise their congenital origin may thus lead to misapprehension and in some cases to much unnecessary anxiety on the part of the practitioner. This apparent difference is no doubt partly due to the ease and minuteness with which the eye can be examined, so that less degrees of departure from the normal will be recognised in the eye than is possible in other parts, and partly to the fact that, the defects being in many cases invisible without an ophthalmoscope, they

escape the notice of the patient or his relatives until discovered by examination.

Naturally, as in other parts, there are also gross errors of development of the eye which are immediately evident at birth (such as microphthalmia, cryptophthalmia, and cyclopia). These do not require description here, since they are obviously developmental and are unlikely to be confused with anything else or to demand treatment. It is the smaller anomalies, in themselves of no clinical value, which may easily be confused with pathological conditions of grave import.

Differential Diagnosis of Congenital Abnormalities from Affections of the Fundus Oculi.

Affections of the fundus will be dealt with first, since they present by far the most difficult diagnostic problems.

From Papilloedema.

A young patient may come to his doctor complaining of increasing headache, irritability, and inability to concentrate on work. In the course of the examination, which reveals no definite physical signs, the eyes are inspected. There is no external abnormality and the patient states that his vision has been good, but that lately he has noticed occasional mistiness. On ophthalmoscopic examination it is seen that the edges of the optic disc are blurred and that it is distinctly redder than normal. The question at once arises as to whether this is a case of early papilloedema from cerebral tumour, and this diagnosis may easily be made if one forgets the existence of the congenital condition known as pseudo-neuritis.

Pseudo-neuritis is generally associated with hypermetropia, sometimes of high degree (6 D. or more), but not necessarily. This hypermetropia will give rise to severe headache, blurring of vision on close work, lassitude, and the whole train of symptoms of asthenopia, which, when taken in conjunction with an apparent early papilloedema, may easily simulate signs of raised intracranial pressure. The differential diagnosis rests on the following facts. Pseudo-neuritis is almost invariably associated with hypermetropia. The swelling of the disc is more apparent than real. There are no hæmorrhages and no exudate. The appearance is absolutely stationary and the symptoms can be completely relieved by correcting the hypermetropia. A cerebral tumour sufficiently advanced to cause papilloedema will almost certainly have given rise to vomiting as well as headache, but a swelling of two dioptries or more is certainly pathological and pseudo-neuritis should not be diagnosed.

One should bear in mind in considering the diagnosis of papilloedema the fact that apparent blurring of the upper and lower edges of the disc is often seen in high degrees of astigmatism and is merely an optical effect caused by the impossibility of focusing all parts of the disc distinctly at the same time. As regards the colour of the disc, it should be remembered that it is very variable, normal degrees of vascularity shading imperceptibly into states of definite hyperæmia. Generally dark-complexioned people have discs of richer colour than blondes. The very variable pigment ring round the disc should not be mistaken for a pathological condition.

From Glaucoma.

Another and rarer condition of the disc may cause anxiety by confusion with the cup seen in chronic glaucoma. In the true glaucomatous cup the vessels can be faintly seen emerging from the centre of the disc at the bottom of the cup and curling over the overhanging edge, while the field of vision shows contraction, especially on the nasal side, though central vision may be of normal acuity. In the congenital condition which resembles this all the vessels emerge round the edge of the disc and no central vessels can be seen. Sometimes the surface of the disc is level and sometimes deeply depressed below the surface of the retina (coloboma of the disc),

¹ An address read at the meeting of the London Association of the Federation of Medical Women held on April 10th.

in which case the appearance much resembles a glaucoma cup, but is often much deeper and more irregular, and may show pigmentary deposits. It is interesting to note that a cupped disc with vessels emerging round the periphery is normal among most of the Carnivora. The visual acuity in these congenital cases may be normal or diminished. In one case seen by me there was also a coloboma of the choroid below the disc, which gave rise to a marked defect in the upper part of the field of vision. The typical appearance of this coloboma, however, made the congenital origin a matter of certainty.

An abnormally deep physiological cup will not be confused with a glaucoma cup if it be remembered that in glaucoma the margin of the cup is at the margin of the disc (though the disc may be surrounded by a white ring of exposed sclera), while in a deep physiological cup there is always a rim of normal disc round the periphery.

From Glioma Retinae.

One is often confronted with infants brought because the mother fancies there is something wrong with the child's eyes. She may even have noticed a peculiar sheen in the pupil. Other conditions besides glioma of the retina should then be borne in mind. The congenital conditions most likely to cause doubt are the various degrees of persistent hyaloid artery. In well-marked cases a vessel stretches through the vitreous from the optic disc to the posterior surface of the lens. Here it may appear only as a small central opacity in the pupil, or it may be associated with persistence of the posterior part of the vascular capsule of the lens, in which case the back of the lens will be seen covered with a more or less shining membrane in which blood-vessels can be seen. This appearance much resembles a mass of vascular new growth in the vitreous, but it must be remembered that in glioma retinae the tension in the posterior part of the eye is increased and the lens and iris pushed forwards, so that the anterior chamber is very shallow, while in persistent hyaloid artery the anterior chamber is normal or even deeper than normal.

In less marked cases the posterior part of the lens is unaffected and only the proximal part of the artery persists. It may be seen as a cord-like structure stretching forward from the disc, sometimes containing blood and sometimes veiled with a film of connective tissue, which may also extend over the branches of the *Arteria centralis retinae* on the disc. This appearance may resemble a new growth, but it lacks the golden and clear-cut appearance of early glioma and there are no satellite growths scattered over the retina. It is a point of anatomical interest that the hyaloid artery normally breaks up into several branches in the vitreous before reaching the lens. In two human embryos which I have examined there were five branches spreading out in a fan from the main trunk. If more than one of these branches persists the condition may be mistaken for *retinitis proliferans*.

From Retinitis and Choroiditis.

The diagnosis and prognosis of general conditions, particularly those associated with arterio-sclerosis, albuminuria, or syphilis, are often materially assisted by an examination of the *fundus oculi*. In such cases the physician is particularly on the look-out for hæmorrhages, white patches of exudate, pigmentary disturbances, and areas of choroidal atrophy. Here, again, congenital defect sets a snare for the unwary. In the first place, the presence of *opaque nerve fibres* either at the edges of the disc or in patches along the course of the larger vessels may be extremely misleading. Unless excessive they cause no symptoms, so no help can be derived from the history. In appearance they are feathery white finely-striated patches of varying size, always with a fringed appearance at their peripheral edges. There is no disturbance of the retina apart from them and the vessels are

usually normal, though, of course, arterio-sclerosis may coexist. They are very likely to be mistaken for patches of exudate, though these latter are always more creamy in tint, soft and fluffy in texture, and show no peripheral striation. They may frequently be seen to involve the deeper layers of the retina, whereas opaque nerve fibres are superficial. Exudate is almost always associated with hæmorrhages and changes in the vessels and is often accompanied by a "macular fan," while it is rare for opaque nerve fibres to involve the macula, and if they do so it is in the form of a dense white patch and not a fan-shaped figure.

Hæmorrhages from the retinal vessels are usually quite straightforward, but there is a curious and rare condition which may be confused with them. This anatomical peculiarity is known as a choroido-vaginal vein (or posterior vortex vein). Such a vessel is a very large choroidal vein which collects blood from a variable area of the choroid and leaves the eye in the neighbourhood of the optic disc. It is very broad (sometimes as much as half the diameter of the disc) and lies on a deeper plane than the retinal vessels. Like the smaller choroidal vessels which are sometimes visible it has no light streak, but is flat, lustreless, and ribbon-like. Its large size, deep red colour, and lack of reflex make it look very like a patch of extravasated blood, but if it be examined carefully it will be seen to be a large vessel, and pressure on the eyeball will cause it to empty and disappear. Such choroido-vaginal veins occur most often in myopes, though they have been seen in poorly pigmented emmetropic and hypermetropic eyes. They sometimes leave the eye through the floor of a myopic crescent.

Patches of *choroiditis* are often of great diagnostic importance. They appear, unless seen early in the active stage, as glistening white areas surrounded by irregular heapings of black pigment. The retinal vessels often pass over them, but choroidal vessels are absent. The patches are usually multiple and vary in shape and size. Confusion may arise between patches of atrophy from choroiditis and one or other of the forms of *congenital coloboma of the choroid*. In coloboma the chorio-capillaris is absent over a portion of the fundus. Both choroidal and retinal vessels may be seen coursing over the white floor of the coloboma. They are usually small. The coloboma may be ectatic; patches of choroiditis, except in high myopia, are level or nearly so. Scattered pigment may be present or there may be a thin line of pigment at the edge of the coloboma, but there is not the exuberant heaping up of pigment seen in choroiditis. In coloboma there is only one patch and it is most often situated below the disc, with its greatest diameter in the vertical. Its anterior edge is frequently not seen, though it may reach to the edge of the pupil, constituting a coloboma of the iris.

Colobomata may occur in atypical situations and hence be misleading. The most important of these is the macular coloboma, which is rare and somewhat of an embryological puzzle. It much resembles a single patch of central choroiditis. It is usually horizontally oval, the edges are sharp, it is often surrounded by a yellowish zone, and it may be pigmented. There may be a history of defective vision from birth but not necessarily, and it may occasionally be extremely hard to diagnose. The chief features are that it is absolutely stationary and it is the only patch seen. The so-called Fuchs's coloboma is a white crescentic area below the disc and is due to an anomaly of development of the upper end of the choroidal fissure. It is usually found in hypermetropic eyes and is not likely to be mistaken for anything else unless its white colour and the patient's poor visual acuity (from the refractive error) lead to a suspicion of atrophy.

Pigmentary Disturbances.—These occur with frequency in choroiditis, retinitis, and high myopia. Congenital anomalies of pigmentation may be either in the direction of excess or deficiency. The variable

pigmentation at the edge of the disc has been referred to above. Pigment in this situation, even when in isolated masses, is seldom pathological unless accompanied by signs of exudate or choroidal atrophy. The amount of pigmentation seen over the retina varies with the complexion of the individual, from the almost chocolate colour of the negro's fundus to the bright red apparently pigment-free albinotic eye.

On the whole, then, the differential diagnosis of intraocular congenital anomalies rests on the observation of minute details of their structure and colour and to a certain extent on the appreciation of their stationary nature, though it is often undesirable to postpone an opinion until this last point has been verified.

Differential Diagnosis of Anomalies of Parts Anterior to the Vitreous.

Anomalies of the parts of the eye anterior to the vitreous are also apt to give rise to difficulty, though on the whole their congenital nature is more obvious, both because the history is of some value and the parts concerned are more easily examined.

From Iritis.

The chief signs of old iritic mischief which may lead to confusion with congenital conditions are the irregularity of the pupil, the presence of organised exudate and adhesions to the anterior capsule of the lens, and the alteration in colour of the affected eye as compared with the other in unilateral cases.

Irregularity of the Pupil.—In the first place, one must mention the condition of coloboma of the iris. Here the pupil is pear-shaped or oval with the narrower part usually below, though not always. The defect may be complete—i.e., a forward continuation of a coloboma of the choroid, or incomplete and not extending to the root of the iris, or there may be a narrow bridge of iris uniting the two margins of the cleft at one point. Here the possible occurrence of fundus abnormality, the absence of adhesion of the iris to the lens, and the dilatation of the pupil under atropine and, if one may use a paradox, the regular irregularity of its shape, will assist the diagnosis.

In other cases the congenital malformation of the iris may take the form of extra holes beside the pupil, which itself may be abnormal in shape (polycoria). There is most frequently one extra hole near the pupil, the slender bridge of iris separating it sometimes resembling a band of organised exudate subdividing a normal pupil. Here a drop of atropine will help matters. In polycoria the primary pupil dilates and the accessory one merely alters in shape passively since it possesses no sphincter. In iritis with a band-like adhesion both the parts of the pupil will dilate except where they are held by the adhesion. A single pupil may sometimes be seen much displaced, usually up and in (corectopia). Here the light reaction is normal.

True adhesions of the iris to the anterior capsule of the lens may occasionally be found in cases of polycoria and corectopia. More commonly, however, they are simulated by tags of persistent pupillary membrane. These may vary from fine filaments scarcely visible to fairly dense bands crossing the pupil and sometimes passing forward to the back of the cornea. Their true nature can always be recognised by observing that they are attached to the anterior surface of the iris a little way from the margin (the *circulus iridis minor*), whereas inflammatory synechiæ always come from the edge of the pupil. Occasionally these tags of persistent pupillary membrane disappear during childhood, but leave behind them a very regular arrangement of brown pigment dots on the front of the lens. These differ from the pigment spots left by broken-down inflammatory synechiæ in their regularity and small size.

Congenital *heterochromia iridis* is occasionally seen, either one iris being of a different colour from the

other or different parts of the same iris varying in tint. The absence of signs of inflammation and atrophy will be noted.

From Results of Trauma.

Some of the above conditions may also resemble the results of trauma. The converse of this was well shown in a case seen recently in which the iris presented the appearance of a small clean-cut oval hole to the nasal side of the pupil, whence the possibility of polycoria. Only the history and the presence of a minute white opacity in the cornea immediately opposite the hole served to show that it had been caused by a perforating wound many years before. Coloboma of the upper or lower lid may occur in the form of a small notch, usually to the inner side of the mid-line of the eye. The eyelashes are absent in the coloboma. These defects in the lower lid are frequently associated with defective development of the malar bone. Various other anomalies, such as dermoids, skin bridges from the lids to the globe, coloboma of the iris, corneal opacities, &c., are often associated with congenital clefts of the lids.

The presence of corneal opacities must not be taken as absolute evidence of past inflammation or trauma since they may be congenital. The question as to whether they are truly developmental or are due to intra-uterine inflammation or trauma is debatable.

Coloboma of the lens may or may not be associated with coloboma of the iris. If it is not and the patient happens to come up with a history of injury, it is possible that the edge of the coloboma seen in the pupil may be mistaken for the edge of a dislocated normal lens: it is to be remarked, however, that the curve of the edge of a colobomatous lens is concave towards the pupil margin while that of a dislocated lens is convex. A congenitally dislocated lens may be very misleading in this connexion, though the history of poor vision from birth may help. Congenital dislocation of the lens appears to predispose to acute glaucoma.

From Disorders of the Motor Mechanism of the Eye.

In this group I have included those congenital conditions which simulate on the one hand acquired disease of the central nervous system, and on the other the common condition of concomitant squint.

Congenital ptosis may be unilateral or bilateral. It is often incomplete, the pupil being not quite covered. In slight cases the lids may show movements associated with those of mastication and deglutition (synkinesis), but no independent movement. In more marked cases there is defective upward movement of the eye. In all cases of congenital ptosis the pupil reactions and the accommodation are normal, and this fact is perhaps the most important in their diagnosis. Confusion may arise in cases seen apropos of other non-associated symptoms, where the history is vague. In these cases one has to think of the possibility of a syphilitic syndrome, or of myasthenia gravis, incipient bulbar palsy, cerebral tumour, or abscess. The fact that one eye only is affected does not in itself exclude early myasthenia gravis, as, in a case which I saw recently, a unilateral ptosis preceded the appearance of weakness in the tongue and lips and the other eye by several months. In this case the amount of ptosis was variable and there was rapid improvement under strychnine.

In practically every other condition which may be confused with congenital ptosis there is involvement of some or all of the other muscles supplied by the third nerve, and the pupil reactions are invariably affected. In cases of congenital ptosis which are hereditary there is usually marked limitation of movement of the globe and also sometimes nystagmus, but in all the cases so far reported pupil reactions and accommodation were normal.

Congenital defect of any one of the eye movements may occur alone, and in these cases the defect may be due to various anatomical causes, such as defective development of the muscle at fault, its abnormal

insertion or bifurcation, and absence or aplasia of the nerve. The resulting squint can be differentiated from a concomitant squint by the fact that the relation of the visual axes to each other is not the same in all positions of the eye, and from a true paralytic squint by the absence of secondary contracture and of diplopia, and, frequently, the presence of nystagmus.

Inequality of the pupils is often a valuable diagnostic sign, but it should be remembered that it may accompany marked dissimilarity in the refraction of the two eyes. In these cases it varies from time to time, and becomes less when the correcting glasses are worn.

Nystagmus dating from birth is associated with some defect of the eye which hinders the development of central fixation. Such defects should be carefully looked for in considering all cases of nystagmus. The commonest are opacities in the media (especially the lens and the cornea, either congenital or due to ophthalmia neonatorum), albinism, and occasionally complete colour blindness or aniridia. The presence of any of these will help to allay suspicions of disseminated sclerosis, cerebellar lesions, or Friedreich's ataxia. Congenital nystagmus is not accompanied by the sensation of movement of objects looked at and of vertigo, whereas acquired nystagmus frequently is.

From Melanotic Sarcoma.

There are two conditions which may give rise to grave suspicions of melanotic sarcoma if they are accidentally discovered during a routine examination. They cause no symptoms, but neither does an early sarcoma. The first of these is the presence of clusters of small deeply pigmented nodules at the edge of the iris. They are sometimes likened to bunches of grapes (*Traubenkörner*) and are of normal occurrence in horses. Their position and the fact that they do not appear to infiltrate the iris but rather hang from its edge may help to distinguish them.

The second condition consists of the presence of one or more small black dots in or just under the conjunctiva, often at the site of perforation of the anterior ciliary vessels. A faint dusky patch is often seen here in dark-complexioned people, but occasionally a definite black nodule is formed. These should always be carefully watched, since, though, like "moles" elsewhere, they may remain quiescent permanently, there is always just a possibility that they may enlarge, when they must be viewed with suspicion and submitted to treatment.

Other Congenital Conditions of Interest.

There are two conditions dating from birth which are interesting as they resemble senile changes, though they are of little diagnostic importance. The first is the presence of a white ring-like opacity in the cornea exactly resembling an *arcus senilis*. The second is congenital ectropion of the lower lid. This occasionally resembles the senile condition but may look like scarring. Ectropion of the lower lid is normal in St. Bernard dogs. The opposite condition—namely, entropion of the lids—is sometimes seen to occur congenitally. It is, of course, liable on superficial examination to be mistaken for trachoma, but the absence of granules or scars on the tarsal plate will distinguish it, even in the presence of pannus which may be caused by the rubbing of the lashes against the cornea.

Finally, there is a misleading condition of which I recently saw a good example. The patient, a woman, appeared to have a marked unilateral exophthalmos which suggested the presence of an orbital tumour. On examination, however, I found that the appearance of exophthalmos was solely due to the large size of the affected eye, which showed a refraction of -16 D., the other being practically emmetropic. The media in both eyes were quite clear and the corneae of the same size, there being no suggestion of buphthalmos. The patient stated that the condition dated from birth and that several other members of her family were similarly affected.

HEATING OF THE TISSUES OF THE BODY BY LIGHT AND HEAT RAYS.

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RECENT experiments have revived interest in the question of the effects of the application of light, heat, and cold upon the temperature of the tissues of the body. MacLeod, Self, and Taylor,¹ and more recently MacLeod and Taylor,² determined the effect of the local application of heat and cold by means of electrically heated pads and glass tubes, heated or cooled with circulating water, upon the temperature of the unshaved and shaved skin of rabbits, and on the organs underlying the skin thus treated. They used thermo-electric couples mounted in hypodermic needles, and a galvanometer specially calibrated to determine the temperature of the tissue. They found that the changes produced varied with vascularity of the different tissues. Thus the temperature of the liver and the kidney was little affected by heating or cooling of the overlying skin, whilst that of the brain or of muscle was considerably altered. In no case was the general body temperature affected by such local application of heat and cold.

Sonne³ studied the effect of the various rays of the universal light bath (Finsen), and concluded that the luminous rays heated up a very essential portion of the aggregate blood volume of the organism to a temperature possibly exceeding the highest ever measured, without causing the body temperature to rise to any appreciable degree. He found that the luminous rays heated up the cutaneous blood 5.8° C. higher than do the infra-red rays. In the case of the luminous rays the subcutaneous temperature is above the skin temperature, whereas in the case of the dark infra-red rays the skin temperature is higher than the subcutaneous temperature. Sonne employed thermo-electric couples mounted in hypodermic needles, as did MacLeod and his co-workers.

In this paper we record results of experiments in which we exposed rabbits to the rays from the sun and from a carbon arc lamp, paying particular attention to the comparative effects on the temperature of the brain and of the body in general. We also record results of experiments to determine the comparative effects of the total rays from an ordinary gas radiator, dark heat rays from the same source, and total rays from a carbon arc lamp upon the temperature of the human subcutaneous tissue. We took the temperature of the tissues in some cases by placing delicate thermometers into the tissues, and in other cases by using thermo-electric couples mounted in hypodermic needles, connected with a differential galvanometer; for this apparatus we are indebted to our colleague, Dr. E. J. Schuster.

Results from Observations upon Rabbits.

Examples of our results from observations upon rabbits are given in Tables I. to VII. In most of these observations we employed urethane as an anæsthetic; the results were not obviously affected by the anæsthetic, since they resembled results from animals without anæsthesia. In some cases the whole body of the animal was exposed to the sun's rays (Tables I., II., and IIIA), whilst in other cases the head and upper part alone were exposed to the sun, the rest of the animal being shaded (Table IIIB). From Table I. it will be seen that exposure of the whole body of the animal to the sun for about half an hour raised the temperature of all the deep tissues about 1° C., whilst one hour's further exposure of the whole animal to the sun raised the temperature of all the deep tissues to above 41° C.; the rectal temperature of this animal in the shade before the

TABLE I.

Black rabbit; urethane. May 31st, 1922.

1	2	3	4
Time.	Conditions of animal.	Region of body.	Temp. °C.
12.0	Whole body in shade.	Rectum.	38.2
12.5		Ear.	35.0
12.35 et seq.		—	—
	Whole body in sun.	Rectum.	39.5
		Ear.	39.5
		Fur.*	54.0
		S.T. of back.	41.5
12.45	Whole body in shade.	Surface of brain.	39.5
1.45		—	—
2.45 et seq.		—	—
	Whole body in sun.	Surface of brain.	41.0
		S.T. of thorax.	43.0
		Rectum.	42.0
		Ear.	40.5
		In thoracic cavity.	42.5
		Fur.	53.0
		In nasal cavity.†	42.5
		S.T. of back.	43.5
		Medulla, pithed with thermometer.	41.5
		—	—

S.T. = Subcutaneous tissue.

* Temperature of an isolated piece of black fur in sun was 46° C.

† Temperature of an isolated piece of black fur in sun was 50° C.

TABLE II.

Rabbit; urethane. June 2nd, 1922.

1	2	3	4
11.55	Whole body in shade.	Rectum.	37.5
12.0		S.T. of back.	37.0
12.45 et seq.		Ear.	B. 35.0
	Whole body in sun.	Rectum.	39.0
		S.T. of back.	42.0
		Ear.	39.5
		Fur.	52.5*
1.0		Nasal cavity.	40.0
2.0 et seq.		Rectum.	40.0
	After death at 1.30.	S.T. of back.	42.0
		Brain.	41.0
		Rectum.	43.0
		S.T. of back.	45.0

B. = Below.

* Temperature of an isolated piece of black fur was 56° C.

TABLE IIIA.

Grey rabbit; urethane. June 12th, 1922.

1	2	3	4
12.10	Whole body in sun.	Rectum.	38.5
12.39		Fur.	49.0
12.45*		Ear.	40.0
12.50		Under scalp.	41.0
"		S.T. of back.	42.0
"		Rectum.	39.0
1.0		Cerebrum.	39.5
"		Medulla.	39.5
"		—	—
"		—	—

* Respiration 108 per minute.

TABLE IIIB.

Grey rabbit; urethane. June 12th, 1922.

1	2	3	4
12.30	Whole body in shade.	Rectum.	37.5
12.32		—	—
1.2* et seq.		Rectum.	36.5
	Head and upper part of body in sun.	Ear.	39.0
		Fur of head.	46.5
		rump.	29.0
		Rectum.	36.0
		Fur of head.	44.5
		Ear.	38.5
		Under scalp.	38.0
		S.T. of back (in shade).	35.5
		Cerebrum.	36.5
		Medulla.	36.5

* Respiration 60 per minute.

TABLE IV.

Grey rabbit; urethane. June 7th, 1922.

1	2	3	4
12.0	Whole body in shade.	Rectum.	39.0
12.20		Fur.	26.0
12.50 et seq.		S.T.	38.0
	Head and upper part of body 4½ ft. from carbon arc.	Fur.	61.0
		Rectum.	38.0
		S.T. of neck.	48.0
		Between skull and dura mater.	41.5
		Cerebrum.*	41.0
		Thoracic cavity.	41.0
1.10	Whole body in shade.	Rectum.	38.5
3.0 et seq.		Fur.†	26.0
		Rectum.	35.5
		S.T. of back.	B. 35.0
		Medulla.	B. 35.0

* Respiration very rapid (exceeding 100 per minute).

† Respiration normal.

TABLE V.

Grey rabbit; urethane. June 9th, 1922.

1	2	3	4
12.0	Whole body in shade.	Rectum.	37.0
12.15		S.T. of back.	36.5
12.30		Fur.	25.0
12.35	Head and upper part of body 4½ ft. from carbon arc.	Fur.	69.0
		Under scalp.	44.5
		Ear.	41.5
12.40		Rectum.	38.0
12.45		Ear.	40.5
		Under scalp.	46.0
12.50		Between skull and dura mater.	43.0
12.55*		Cerebrum.	42.0
"		Medulla.	40.5
"		Rectum.	38.5

* Respiration very rapid (exceeding 100 per minute).

TABLE VI.

Grey rabbit; no anaesthetic. June 9th, 1922.

1	2	3	4
2.15	Whole body in shade.	Fur.	26.5
		Ear.	31.0
		Rectum.	40.0
2.25	Head 4½ ft. from carbon arc; rest of body shaded.	Fur between thigh and body.	38.0
2.30		Fur of head.	69.0
2.35*		Ear.	43.0
		Nasal cavity.	40.5
2.45		Rectum.	40.5
		Ear.	43.0
2.50	Animal killed; neck broken.	Cerebrum.	42.5
		Medulla.	41.5
		Rectum.	41.0

* Respiration very rapid (exceeding 100 per minute).

TABLE VII.

Black rabbit; no anaesthetic. June 13th, 1922.

1	2	3	4
3.0	Head 4½ ft. from carbon arc; rest of body shaded.	Rectum.	38.5
3.14		Fur of head.	55.5
3.17		Ear.	45.5
3.33		Fur of head.	67.0
"	Animal killed; neck broken.	Rectum.	38.5
3.37		Under scalp.	42.0
		Cerebrum.	40.0

* Respiration very rapid (exceeding 100 per minute).

experiment was 38.2° C. The ear temperature was taken in all cases by wrapping the ear round a thermometer. The fur temperature of the animal was greatly raised—53° C. The animal's fur temperature, taken by stroking the fur to and fro with a thermometer, was a good guide to the intensity of the sun. For this purpose we also recorded the temperature of a piece of ordinary black fur exposed to the sun until its

temperature became almost constant. Table II. shows how the temperature of the animal continues to rise after death; the cause of death in this case was probably due to urethane. Tables IIIA and IIIB should be compared with one another. The results in Table IIIA were obtained from a grey rabbit, the whole body being exposed to the sun, whereas the results in Table IIIB were obtained at the same time from another grey rabbit, the head and upper part of the body being exposed, while the rest of the animal was shaded. Whereas the temperatures of the various deeper tissues showed a distinct rise of temperature in the former rabbit, in the latter there was distinct fall. In the former rabbit the respiration was much increased, being 108 per minute, whilst in the latter quite a normal figure was obtained, 60 per minute.

We may conclude, then, that exposure of the head and upper part of the animal to the sun probably caused on the whole a depression of metabolism. We must remember that the rabbit has no sweat glands. It is well known that this animal does lose heat easily from its ears, but such a mechanism obviously could be of little value when the fur temperature of the head was 46°C . in the sun. As we were not able to produce much local effect on the brain by the intensity of sun available—the fur temperature never exceeded 54°C .—we next employed the carbon arc, placing the animal head-on about 4 or 5 feet from the carbon arc reflector, the body of the animal being shaded. Tables IV., V., VI., and VII. give results from some observations. It will be noted that we obtained a distinct rise of temperature in the brain by the rays from the carbon arc when the fur of the head was heated above 60°C . Thus in Table IV., after 30 minutes' exposure, the temperature of the fur of the head was 61°C ., the temperature between the skull and dura mater was 41.5°C ., that of the cerebrum was 41°C ., whilst the rectal temperature was only 38.5°C . The effect of heating of the head and brain by this means caused a marked increase in rate of respiration, although the rectal temperature was not increased. Subsequent shading of the whole body of the animal was followed by a fall of temperature of the urethanised animal below normal—which is usually given as 38.5°C . for an ordinary laboratory rabbit. In Table V. it will be noted that exposure to the carbon arc produced the following readings: 69°C . for the fur of the head, 46°C . under the scalp, 43°C . between the skull and dura mater, 42°C . in the cerebrum, 40.5°C . in the medulla, whilst the rectal temperature, although showing an increase, was quite a normal figure, 38.5°C . Here, again, the respiration was much increased. In Tables VI. and VII. we give the results obtained from animals without an anæsthetic. They are very similar to the results during anæsthesia given in Tables IV. and V. The figures in Table VI. were 69°C . for the fur of the head, 42.5°C . for the cerebrum, taken immediately after killing the animal by a blow on the neck, 41.5°C . for the medulla, whilst the rectal temperature was 41°C .; and the figures in Table VII. were 67°C . for the fur of the head, 42°C . under the scalp, 40°C . in the cerebrum, and 38.5°C . in the rectum.

Our results are of interest in connexion with the pathological effects of insolation, as in sunstroke. This subject was dealt with by one of us (L. H.) in "The Science of Ventilation and Open-Air Treatment,"⁴ to which the reader is referred for the literature. Therein it is recorded that Aron killed monkeys by exposing them to the sun in the Philippines. They died with body temperatures reaching respectively 43.5° , 42.7° , 46.3° , and 44.8°C . None of our rabbits showed a higher rectal temperature than 42°C . Aron found that shading by an umbrella or a board prevented death, as did a brisk current from a fan. Death was due, then, to heat-stroke, and not to any lethal effect of light rays, a conclusion confirmed by the fact that monkeys enclosed in boxes, with the head only exposed, suffered no inconvenience, although their scalp temperatures reached 47°C . One of our rabbits showed 48°C . for temperature of subcutaneous tissue of the neck when exposed to the

carbon arc (Table IV.); another rabbit gave 46°C . under the scalp when similarly exposed (Table V.). None of our animals died during exposure.

Schilling⁵ also found the subcutaneous temperature of a white rabbit in the shade to be 38.4°C .; in the sun in 30 minutes it rose to 40.4°C . The skin was shaved, and after 30 minutes in the sun the temperature of the subcutaneous tissue was 41.5°C . Our figures for subcutaneous tissue temperatures were often higher than these, although our animals were not shaved. Schmidt⁶ exposed a white and a black rabbit to the sun. The rectal temperature rose from 38.5° to 39.5°C . in the white, and to 40.2°C . in the black, so that attention must be given to the fact that black fur absorbs more heat than white fur.

Three chimpanzees were exposed to full sun by accident in a court of a laboratory in French Guinea mid-day, between 12 to 2 o'clock. The temperature of the air was 40.6°C ., the relative humidity 20. The servants reported that they had noticed the agitation and plaintive cries of the animals. They were found as convulsions passed into muscular resolution, coma, and death. The conjunctivæ and skin were injected; there was no relaxation of sphincters; the pulse was accelerated and the animals died in spite of cold baths. The rectal temperature was 40°C . 15 minutes after death. Post-mortem examination revealed congestion of all organs, particularly the lungs, turgescence of venous sinuses of the brain, and presence of exudation in the pericardial cavity. There were signs of a destruction of leucocytes in the blood.⁷

Our results support the evidence that while so-called sunstroke is generally heat-stroke due to overheating of the body in general, overheating of one part of the body can be brought about by the sun or other source of radiant energy. Pith helmets, spinal pads, &c., prevent such local heating, which takes place to a greater extent in those exposed to the sun whose circulation is from any cause enfeebled. The perfectly fit man, just as the fit monkey, can become injured by training and suitable diet even to exposure of his whole body to the tropical sun, protected as he is by sweating and a good circulation.

Results from Observations upon Human Skin.

We have repeated, under somewhat varied conditions, Sonne's experiments, which deal with the power of luminous rays to heat up subcutaneous tissue and the blood therein above the surface temperature. For these observations we employed ordinary sources of rays—that is, the rays from a carbon arc lamp, red radiant heat from an ordinary gas radiator, and dark heat rays from the same source, the luminous rays being shut out by placing an iron sheet in front of the gas fire. Obviously the carbon arc possessed the most luminous and the dark heat the least luminous rays. The non-luminosity of the rays was tested by tube inspection under a dark cover. The thermoelectric needles of the differential galvanometer were placed under the skin and just below each knee, and one knee was exposed to the various rays, the other being shaded. When in each case the surface temperature had reached the just bearable temperature of 45°C .—as measured by a delicate surface thermometer—the reading of the differential galvanometer was taken. The differences between the temperatures under the skin of the two knees (L. H. June 27th, 1922) were 10.5°C ., 6.7°C ., and 6.3°C . for the carbon arc, ordinary gas fire and dark heat rays respectively, showing that the more luminous rays from the carbon arc affected the subcutaneous temperature to a greater degree than did the rays from the other two sources of heat. This supports Sonne's work, showing that luminous rays raise the subcutaneous temperature above that for the skin surface. It was found in our experiment just described that the temperature under the shaded knee was 33.5°C .—one needle was placed in water of a known temperature, and thus the differential galvanometer enabled us to calculate the exact temperature under the shaded knee where the other needle was placed. From this

it follows that the exact temperatures under the skin of the exposed knee were 44°C . ($33.5 + 10.5$) with the carbon arc, 40.2°C . ($33.5 + 6.7$) with the gas fire, and 39.8°C . ($33.5 + 6.3$) with the dark heat rays. Experiments with other subjects gave similar results. Thus with subject J. A. C. (June 29th, 1922), when the skin of the exposed knee showed a surface temperature of 45°C ., the temperatures under the skin were 12° , 10° , and 9°C . higher for the exposed knee than for the shaded knee with the carbon arc, gas fire, and dark heat rays respectively.

In other experiments we employed an insulated and coiled thermometer placed over the median vein in front of the elbow, whilst the hand was exposed to the rays from the same three sources. The temperature rose rapidly over the vein with any of the rays, showing that the blood in the hand was warmed by the rays. It was not possible by this method to show the comparative effects of the rays from the different sources, because the hand was also heated by the air, and this would affect the temperature of the blood in the median vein, although such a condition could not greatly influence the results with the hypodermic needles, as they were localised. We also found that when the forearm is exposed to the Alpine winter sun and to the cold atmosphere that the surface temperature of the median vein may rise $2-3^{\circ}\text{C}$. in five minutes.

Summary.

1. Exposure of the whole body of a rabbit to the sun's rays at Hampstead rapidly increased the temperature of the deeper tissues, the fur temperature rising as high as 54°C .

2. Exposure of the head and upper part of the body to the sun's rays was followed by a fall of temperature in the deeper tissues, the fur temperature in the sun not exceeding 46.5°C .

3. Local exposure of the head of a rabbit to the carbon arc greatly increased the temperature under the scalp and in the brain, the fur temperature rising above 60°C . The body temperature—rectum—was often not greatly altered. The respiration was always very rapid—over 100 per minute.

4. While recognising fully that heat-stroke is usually due to a general raising of the body temperature, our results show that local heating may occur, and confirm the utility of pith helmets and spinal pads on exposure to tropical sun.

5. Using the skin of the human knee and ordinary sources of rays—carbon arc and gas radiators—Sonnen's results were confirmed—i.e., luminous rays heat up the subcutaneous tissues to a greater degree than do non-luminous rays, the skin temperature being the same in both cases.

References.—1. MacLeod, J. J. R., Self, A. R., and Taylor, N. B.: THE LANCET, 1920, ii., 645. 2. MacLeod and Taylor: THE LANCET, 1921, ii., 70. 3. Sonne, C.: Acta Medica Scandinavica, 1921, liv., 394. 4. Hill, Leonard: The Science of Ventilation and Open-Air Treatment, 1920, Part II., chap. viii. 5. Schilling, C.: Arch. f. Schiff's- u. Tropen-Hyg., 1909, xiii., 1. 6. Schmidt, P.: Arch. f. Hyg., 1903, xlvii., 262; 1908, lxxv., 17; 1909, lxxix., 1. 7. Leger, M.: Compt. Rend. Soc. Biol., 1922, lxxxvi., 874.

THE TREATMENT OF STUTTERING.

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STUTTERING or stammering is usually regarded as incurable, and not more than 5 per cent. of treated cases ever fully recover, for the pathology of the disease has never been established, and no rational methods of treatment have been found.

The Pathological Lesion.

The first step is to locate and define the pathological lesion. For years I have been attempting this by means of speech inscriptions. In this method of research the patient speaks into a recording apparatus that registers the puffs and vibrations of speech on the moving surface of a blackened drum. The record

sheet is afterwards removed and studied, and measured under the microscope.¹ The detailed results of the investigations lead to certain conclusions.

In the first place the speech inscriptions show that stuttering does not involve any lesion or abnormality of the organs of speech as part of its pathology. Most important of all is the proof that stuttering does not depend on any lesion of the nerves, of the bulbar centres, of the mechanisms of *taxia* or *synergia*, or of any form of nervous coördination. The theory of Kusmaul, Gutzmann, and others, that stuttering is a trouble of nervous coördination of the muscles, has no foundation, and the theories that it depends on defective breathing or tongue action are contrary to fact. In the inscriptions of stutters there is one peculiarity that is never lacking, even in the speech of a patient when he is apparently not stuttering. The stutterer shows a special type of the melody of speech. No such form of the melody of speech is found in any nerve or brain disease or in any mental disease, even of the milder types such as hysteria, psychasthenia, or early dementia præcox. It has, however, two resemblances, on the one side to the speech of normal persons in a certain condition of mind, and on the other side to the speech of epileptics. As I have shown in studies of the speech of epileptics,² the condition common in these three cases is an emotional resistance to the situation, a negation of yielding to the environment. When the environment is changed so that the objectionable element is removed, the peculiarities in normal speech, epileptic speech, and stuttering disappear.

The vital point is next to determine the nature of the objectionable element that affects the speech. In normal life it is anything that arouses a feeling of opposition. With the epileptic it may be the entire content of life. The stutterer has no objection to the events of life, yet when he finds himself alone, his stuttering disappears. It is to be understood, of course, that the objection in all these cases is unconscious; the epileptic or the stutterer himself knows nothing about them and would deny the fact if it were told him. There may be the usual conscious over-compensation for the unconscious defect; the epileptic or the stutterer may attempt to be even more sociable than normal.

Necessary Alteration of the Mental Condition.

If stuttering is a resistance to the human element in the environment, its location is mental, and the aim of the treatment should be to alter the mental condition. Consider the following emergency: A very bad stutterer is called upon to deliver a public lecture before an august body, and on account of his trouble his address will have to be read by someone else. In such a case the stuttering can be temporarily cured for a few days by making a slight but somewhat painful cut in the tongue, by burning it slightly with a cigarette end, by holding a sharp pebble in his mouth, or by any other device that will make his tongue feel painfully queer. The explanation is a curious one. He is now a person in pain, and the human environment may go hang. Another emergency is that of the stutterer who cannot or will not undergo rational treatment but wishes to have occasional help in important situations. If he has sufficient force of character to be willing to speak in what he considers a queer voice, he can speak fluently whenever he pleases. The explanation is that he now feels himself to be a personality of a different kind. This phenomenon is illustrated by the following case: The head of a large business department stuttered so that he could not dictate to his stenographer; he always wrote out his letters and then handed them to her. This he kept carefully concealed from his superiors. On beginning treatment he was told to sing; he had no ear whatever and simply spoke along on about one tone in practically normal speech

¹ The method has been repeatedly described in Brain, Quart. Jour. of Med., Proc. Roy. Soc. Med., Jour. of Neurol. and Psychopath., and also in my Stuttering and Lispings.

² Proc. Roy. Soc. Med., 1920, vol. xiii. (Psychiatry), p. 18.

although he believed he was singing. He was now told simply to sing his letters to the stenographer and that all would be well. He refused, saying that he did not wish to make a fool of himself by singing to his stenographer. The result was "no thoroughfare." It could not be explained to him that he did not really sing when he thought he was doing so, for the entire efficacy of the method lay in his belief that he was singing.

Abnormal Melody of the Stutterer's Voice.

The situation can be helped by demonstrating to the stutterer that he always—even when not stumbling—speaks with an abnormal melody that seems natural to him, but that is really abnormal. Then he is shown that he can speak perfectly in any abnormal way—e.g., in a dialect, with long vowels, on a high note, &c. Finally he is shown that he can also speak perfectly when he adopts a melodious manner of speaking. He will object that when he speaks so melodiously he speaks queerly. It must then be shown to him that when other people speak melodiously the speech does not sound queer. He must grasp the fact that his own abnormal speech appears normal to him but abnormal to others, and that although melodious speech sounds abnormal to him, it sounds normal to others. If he can do this, and has character enough to carry out instructions, he can speak perfectly whenever he wishes. Any rational cure must be aimed at correcting the fundamental psychic defect.

The Combating of Fear.

First, the stutterer's opposition is to be combated, but to tell the patient about his attitude of opposition or of the need of changing it is absolutely contra-indicated. His opposition is unconscious and unknown to him and he will disbelieve and resent any such statement. The chief cause of opposition is the feeling of fear, which can be combated in several ways.

An obvious method of combating the fear is to readjust the patient's environment. In nearly all cases of stuttering children some disturbing influence will be found in the family circle; one boy stood in dread of a vigorous and domineering father, and trembled whenever the father spoke. A school away from home was advised. Many a boy is so coddled, so dependent on his mother, that no result can be hoped for until he is removed from her. The influences in a child's life can be fully understood only by persons familiar with the psychology of the unconscious.

A second method is to get at the root of the fear by psycho-analysis. This alone is not adequate, and no stutterer has ever been cured by it. The patient has a whole series of bad habits engrafted upon his fear, and he will not drop them unless he is shown how to do so. The usual methods of psycho-analysis can often be most profitably modified with stutterers. It is to be remembered that the stutterer comes for relief from his speech trouble, not for the readjustment of his nervous condition. Many such patients resent the slightest discussion of sex topics. If it were necessary to perform an elaborate psycho-analysis in order to cure stuttering, the difficulty would have to be faced, and the patient would have to submit or go away, but this is fortunately not the case. Two of my patients, a boy and a girl, found relief by merely talking about family affairs. Sexual matters were never mentioned, the chief weight being laid on other methods.

Still another method lies in exercises that will combat fear in general and fear in speaking in particular. Such forms of outdoor sports and gymnastic exercises are to be selected as will, in the particular person, best produce a feeling of power and superiority. A similar feeling in meeting an opponent may be favoured by boxing and fencing. Breathing exercises often help to give confidence in speaking. Of the utmost importance are exercises in melodious speech, in rhythm, in expression, and so on. The exercises in themselves are worthless; it is the specialist's use of them to develop confidence that is the active principle. The administration of glandular substance from the suprarenal cortex has been favourable in

examples of timidity, but the best success is attained when it is combined with thyroid and pituitary.

The Stutterer in a Speech Clinic.

The case of a stutterer in a speech clinic or a special school class is not so hopeless as it might appear, but to treat a whole class by one form of exercise is like treating a surgery full of people from one supply-bottle. Again, to submit a whole class to many exercises is no more rational than to dose the whole surgery with all the medicines of the dispensary indiscriminately. The variety of the effect does not counteract the patient's confusion and loss of confidence. A class or a speech clinic should be handled exactly like a crowded surgery. Each patient should be seen separately every time, and should receive a prescription for the particular exercises or other treatment that he may need at the time. The exercises themselves can be carried out by proper assistants. The head of a speech clinic is necessarily a physician; no layman can conduct it, any more than a nurse can run an orthopaedic clinic. The treatment of stuttering is a medical affair and can be handled only by a medical man.

Clinical and Laboratory Notes.

CASE OF INVERTED PYLORUS OBSTRUCTING A GASTRO-JEJUNOSTOMY APERTURE.

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A SEARCH in the literature has failed to reveal a report of any case similar to that described below, and as it illustrates a danger to be avoided, we think that it may not be without interest to those engaged in the practice of gastric surgery.

Post-mortem examination of a woman, aged 22, revealed the following remarkable condition: The pylorus had evidently been divided surgically at a previous date, and a posterior gastro-jejunostomy had been performed. There was an interval of about 2 in. between the pyloric end of the stomach and the duodenum, and in this interval the liver was adherent to the pancreas. On separating the adhesions the pancreas came into view. The proximal and distal ends of the divided pylorus had been invaginated, but whether any portion had been removed it was impossible

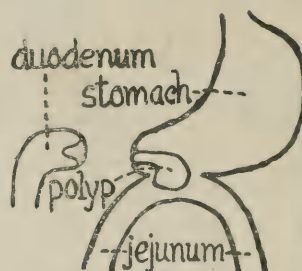


Diagram showing anatomical relationships of the inverted pylorus.

to determine. On opening the stomach along the lesser curvature, the invaginated portion of the pylorus was seen to be about 1½ in. in length, hanging down in the form of a pedunculated polyp into the gastro-jejunal aperture, and almost but not quite blocking it (see diagram). No ulcer was found in any part of the stomach or jejunum. The polyp was freely movable and was neither swollen nor oedematous, but it is conceivable that during life congestion of the polyp with some spasm of the gastro-jejunal stoma had from time to time occurred, producing intermittent obstruction of the orifice. Congestion might also have led to hæmatemesis, and thus it is possible to explain the puzzling symptoms presented by the patient before her death. She was admitted to hospital 13 days before she died with a history of gastric trouble of eight years' duration—i.e., commencing at the age of 14. Two operations had been performed, in May, 1918, and in June, 1922, respectively but with temporary relief only, persistent epigastric pain accompanied by vomiting and hæmatemesis making her life one of misery and incapacity. She had never been able to undertake any serious work and had spent long periods ranging from 7 weeks to 14 months in bed on a milk diet. Even after admission to hospital, when all food by the mouth had been stopped,

she continued to vomit. Life was maintained for some days by means of rectal salines and glucose, but her condition was too precarious to permit of further surgical intervention.

The case is reported to illustrate the danger of invaginating too long a portion of gut and thereby forming a polyp. In this case it caused an obstruction to the outlet from the stomach, and it is possible that in other situations—for example, in a lateral anastomosis after resection of intestine—a terminal invaginated portion might similarly be a potential source of obstruction.

CASE OF TORSION OF AN OVARIAN CYST IN AN INFANT.

BY E. M. POWELL, M.R.C.S. ENG.,

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THE following case may be of interest as an example of an unusual condition occurring at an early age.

A female infant, aged 5 months, was admitted to the Evelina Hospital for Children with the following history. Fourteen days before admission she had an attack of vomiting and abdominal pain, which passed off in 24 hours; four days before admission she vomited a quantity of dark brown material and refused to take the breast. She seemed to be in great pain, and was very constipated.

Condition on Examination.—When first seen at hospital the child looked extremely ill. She had a rectal temperature of 101° F. The abdomen was much distended, and per rectum there was blood on the examining finger. Resistance was felt above and in front of the rectum. On re-examination under an anæsthetic a tense, cystic tumour was found, about the size of the foetal head, filling the abdomen and part of the pelvis.

Operation.—A laparotomy was performed, and the cyst was found to have a twisted pedicle; one twist included the right Fallopian tube, a second twist the uterus, with the left tube and ovary. The uterus and appendages were dark purple in colour, and had to be removed entire. The abdomen was closed without drainage. The patient's condition at the close of the operation was good, and she has made an uninterrupted recovery. She is remaining in hospital while the possibility of ovarian grafting is under consideration.

Specimen.—The specimen removed proved to be a unilocular cyst (see illustration), with a thin, smooth wall,



Ovarian cyst with twisted pedicle; one twist included the right Fallopian tube, the other included the uterus, left tube, and ovary. Note the two cysts (the size of peas) in the left ovary.

containing a serous brown fluid. It had apparently entirely replaced the right ovary. The left ovary also contained two cysts, the size of peas. The wall of the uterus was full of extravasated blood, and the organ had evidently been strangulated for some time. Microscopically, no trace of an epithelial lining could be found remaining in the cyst; there were several hæmorrhages into its walls from congested vessels.

I have to thank Mr. W. E. Tanner for his kindness in allowing me to publish this account.

Rebiews and Notices of Books.

AN INDEX TO GENERAL PRACTICE.

By A. CAMPBELL STARK, M.B., B.S. Lond., L.S.A.,
Ph.C. London: Baillière, Tindall and Cox. 1923.
Pp. 181. 5s.

Dr. Stark describes his book as a humble effort to help the general practitioner in his daily work. He comments on the curious fact that although a large majority of medical students go into general practice, no attempt is made during their curriculum to train them for their special work. Yet, he adds, the work of the general practitioner differs considerably from that of his teachers of medicine and surgery. Writing as a general practitioner himself, he frankly admits that some part of general practice must be a compromise between what it is best to do for the patient and what it is possible to do; and within the brief compass which he has allowed himself Dr. Stark sets out what he has himself found both good and possible in his own experience and after a considerable number of trials and errors. The book is dogmatic in the sense that it is largely a record of convictions deduced from experience. Dr. Stark takes a keen personal interest in his patients; he has learnt to understand and sympathise with their point of view; he evidently enjoys his work and finds satisfaction therein: his dogmatism is the mellowed expression of experience and as such will be welcome to the beginner in general practice. The book is arranged under a series of subject headings in alphabetical order, beginning with Alcoholism, Anæsthetics, Antiseptics, Babies, Birth Control, Blood Pressure, and Books. The section on Books is less than five pages long, but contains much sound advice. Dr. Stark deprecates the accusation brought against the general practitioner that he does not read, and he has drawn up a list of some dozen books which illustrate the principle that the most important things in general practice are personal observation and experience. The selection is felicitous and closely resembles what we have ourselves found useful. Chapters on medico-political and medico-ethical matters are as helpful as those dealing with technique. No embryo general practitioner can fail to derive some hints from the sections on Consultants, Fees, Panel Practice, Practice in Relation to the Law, the Patient and the Public. Nearly every section has its own brief bibliography with a suggestion for further reading. The book is sound and useful, and we congratulate the author upon it.

TECHNIK UND METHODIK DER BAKTERIOLOGIE UND SEROLOGIE.

Von Prof. Dr. M. KLIMMER, Obermedizinalrat,
Direktor des hygienischen Instituts der Tierärztzl.
Hochschule, Dresden. Berlin: Julius Springer.
1923. With 223 illustrations. Pp. 520. 11s. 8d.

THIS is a handbook of reference for laboratory workers and deals with the investigation of material from both human and veterinary sources. The methods described are concerned almost entirely with routine diagnosis and public health work, including the bacteriological examination of water and milk. Regulations and procedure required for taking, sending, and dealing with specimens and pathological samples are detailed, and there are good chapters on sterilisation, filtration, microscopy, staining, section cutting, and animal inoculation. There is a full account of the preparation of different kinds of culture media and of methods of cultivation. Twenty pages are occupied with the testing of disinfectants. The information about special micro-organisms is to be found in a convenient form as an alphabetical list occupying about 50 pages. A section or paragraph is devoted to each organism, and the chief criteria for their diagnosis; cross references are given to pages on which the methods involved are described. The commoner protozoa are briefly included with bacteria and spirochaetes, a longer section being taken up with entamœbæ, but scarcely any mention is

made of helminths. There are some omissions—e.g., the *Micrococcus melitensis*.

The chapter on serology gives detailed methods for preparing diagnostic sera, but no reference is made to the manufacture of therapeutic sera. The techniques of agglutination and precipitin reactions are clearly described, as well as the various uses of complement fixation. The Sachs-Georgi and Meinicke reactions are shortly but clearly dealt with, and there are sections on the application of allergy, and anaphylaxis to the diagnosis of unknown proteins or bacterial substances, and infections. The tuberculin and mallein tests are very briefly treated, no doubt, because they belong to the department of the clinical rather than the laboratory worker.

No attempt is made to discuss scientific principles or current hypotheses. The limited scope of the book in this direction is indicated by the absence of all allusion to different types of meningococcus, pneumococcus, or proteus X19, &c., or to the Schick test for diphtheria immunity. The importance of bacterial carriers is alluded to only in the official regulations quoted, though the kind of laboratory for which the book is intended must be largely concerned with a search for carriers. On the whole the book appears to be a useful and accurate guide to ordinary technique and apparatus with a considerable choice of methods, but with little advice as to their relative advantages. A large number of references (as foot-notes) to original descriptions of method by German, American, English, and French writers considerably enhances its value.

MOLECULAR PHYSICS.

Third edition. By JAMES ARNOLD CROWTHER, M.A., Sc.D., F.Inst.P., University Lecturer in Radiology; Demonstrator in Experimental Physics at the Cavendish Laboratory, Cambridge. London: J. and A. Churchill. 1923. Pp. 189. 7s. 6d.

THE third edition of Dr. Crowther's book certainly fulfils the author's purpose of presenting in a coherent and intelligible fashion a brief account of the electrical theory of matter. The task is accomplished in a particularly attractive manner; there is always an attempt to visualise the processes which are being described. The author's impartiality serves him well; there are excellent accounts of the completest agreement with theory and fact, notably the variation of effective mass of the electron with its speed, the quantum relation of Planck and Bohr's recent "theory of action" in its application to spectroscopic phenomena, while difficulties are not shirked. Dr. Crowther has a way of taking the reader right up to the existing boundaries of knowledge and then letting him know how difficult it is in some places to reconcile the facts with the theories advanced to explain them.

The arrangement of the subject-matter is excellent, the diagrams are well chosen, and the style in which the whole book is written is happy. It is safe to predict that the third will not be the last edition.

X RAY DOSAGE IN TREATMENT AND RADIOGRAPHY.

By WILLIAM D. WITHERBEE, M.D., Radiotherapist, Presbyterian Hospital, New York; and JOHN REMER, M.D., Radiotherapist, New York Hospital. New York: The Macmillan Company. 1922. Pp. 87. 8s.

THE method of dosage described in this book has been used by the authors in clinics and private practice for the past four years. They regard the system of dosage "as safe within certain limitations—namely, between a 3- and 10-inch spark gap and between 6 and 20 inches distance." On the whole, this claim seems to be justified and the method is practical as far as a formula method can be. The system gets rather complicated with screened exposures, but no doubt this complication tends to simplify itself in the brain of the operator, though by that time his need of any rigid system may be less. Considerable stress is laid on the fact that the skin dose resulting from a number of exposures for the purposes of

skiagraphy can be estimated by the formulæ given and the danger of accidents avoided. The authors claim no knowledge of the recent method of treating cancer by the use of high voltages.

The little volume is of the notebook type and as such is likely to be very useful.

THE NEW PSYCHOLOGY AND THE PARENT.

By H. CRICHTON MILLER, M.A., M.D., Editor "Functional Nerve Disease"; Hon. Director, Tavistock Clinic for Functional Nerve Cases. London: Jarrolds. 1923. Pp. 255. 6s.

THIS is a combination of advice to parents with the author's views on the new psychology—a useful term which allows writers to accept what of modern theories seems pleasing to them. In this case the new psychology is mainly that of Jung, with due acknowledgment of the work of Freud, and Dr. Crichton Miller makes this popular statement of principles because it seems to him worth while that psychologists should make good their attitude in the eyes of the intelligent and unprejudiced section of the public. With this aim it is perhaps justifiable to present his subject in a somewhat didactic manner and avoid many of its intricacies. But the simplicity thus attained is dangerous; the chapter on dream symbolism, for example, leaves the impression that interpretation of the dream is entirely a matter of ingenuity on the part of the analyst, and such a false impression should be avoided by the propagandist. The practical teaching of the book, however, is sound and useful; the theory of the unconscious has important application to the relationship between parent and child, and this application is intelligibly explained.

THERAPEUTIC LEXICON.

Lexikon der gesamten Therapie des praktischen Arztes, mit Einschluss der therapeutischen Technik. Second edition. Edited by WALTER MARLE (W. Guttman). Berlin and Vienna: Urban and Schwarzenberg. 1923.

WE have received the third part, being pages 321 to 480, of this therapeutic lexicon, which aims at being a compendium of modern medical technique. The whole work is to be completed in 15 parts, which later can be bound in three volumes. The contributors include the names of the most distinguished physicians and surgeons in Central Europe. The scope may readily be indicated by citing a few consecutive subject headings—e.g., Glandular fever, Duodenal ulcer, Dupuytren's contraction, Thirst (increased and diminished), Douching, Douche-massage, Arteriosclerotic dysbasia, Dyshidrosis. It may be instructive to take one subject as dealt with in this lexicon and compare it with one of the series of special articles on Modern Technique appearing in our own columns. Take, for instance, epilepsy, on which Dr. Gordon Holmes wrote in THE LANCET of March 10th. Dr. Th. Becker finds it necessary to precede his account of treatment by a short section on differential diagnosis and the varieties of epileptic manifestations. It is curious that he should have to issue a warning against the popular practice (here only current amongst school-boys) of prising up the patient's thumb-nail during an attack in order to distract his attention. He gives bromide in the form of the sodium salt, the Sandow salt, or the Erlenmeyer mixture, combining it with a salt-limited diet, and for some time past has combined these two objects in his own practice by prescribing sedobrol (Roche), which is a combination in tablet form of bromide with soup extract. He first tests the patient's bromide tolerance by giving up to four to five tablets a day, gradually reducing to zero by omitting one tablet a day, dropping a week, and then slowly increasing again. He has succeeded in this way in freeing completely from their periodic attack a number of severe cases. Flechsig's opium-bromide treatment he regards as archaic, and he has had no success with Rosenberg's epileptol, for which high claims have been made. Of drugs, apart from

bromide, he mentions only zinc oxide and atropine, the latter in doses of 0.2 to 0.5 mg. Prophylaxis for threatened individuals Dr. Becker regards as of the first importance, the tendency to hereditary transmission being so strong that marriages of epileptics, if entered upon, should remain sterile. Total abstinence from alcohol, regular daily action of the bowels, and non-stimulating nourishment are the points on which he lays stress, as well as limitation of salt in the diet. A useful list of institutions for epileptics completes the article.

DISEASES OF THE LIVER.

Physiologie normale et pathologique du foie. By G. H. ROGER, Doyen de la Faculté de Médecine de Paris, Professeur de Pathologie Expérimentale et Comparée, Membre de l'Académie de Médecine. Paris: Masson et Cie. 1922. Pp. 400. Fr.22.

THIS book deserves a wide audience, and should be read with special interest by those who last year welcomed the learned Dean of the Medical Faculty of Paris when he addressed a London University audience. Prof. Roger writes with lucidity and understanding, and summarises our present-day knowledge of the physiology of the liver in health and disease. His book, also, forms a valuable treatise on the mechanism of the production of immunity, and is a fitting continuation of the work which its author began under the inspiration of Claude Bernard.

Traité de pathologie médicale et de thérapeutique appliquée. Vol. XII.: Foie et Pancréas. Second edition. By J. CASTAIGNE, BRULÉ, GARBAN, NOEL FLEISSINGER, FAROY. Paris: A. Maloine et Fils. 1923. Pp. 522. Fr.22.

THIS volume is one of the most attractive yet published in this system of pathology and therapeutics. Prof. Castaigne deals clearly with the general problems of hepatic disorder and emphasises the importance of modern laboratory methods. Prof. Noel Fleissinger sets out the clinical facts with regard to the cirrhoses and treats of their general pathological effects in a manner which is original and suggestive. Other subjects, such as gall-stones and hepatic abscess, contain excellent epitomes of the doctrines of the French School of Medicine. The portion of the book which deals with the pancreas is less attractive; little mention is made of the connexion of the pancreas with diabetes, and when it is said that no reference is made to the work of Allen, of Opie, or of Banting and Macleod, the significance of the omission will be understood.

A DICTIONARY OF APPLIED CHEMISTRY.

Vol. IV. By Sir EDWARD THORPE, C.B., LL.D., F.R.S. London: Longmans, Green and Co. 1922. Pp. 740. 60s.

THE fourth volume of this well-known and important work, which starts at "L" and concludes with "Oxydisilin," well maintains the high standard of the previous volumes. The contents of the dictionary have been carefully revised so as to accord with recent developments of chemical science. Many new articles have been added, and certain of the existing articles have been re-cast or re-written. Fine chemicals have been the subject of special attention, the pharmacological articles have been revised, alkaloids and synthetic drugs have been treated at greater length, and a considerable amount of new matter relating to them has been added.

There is much which is of interest to the medical man in the present volume. Thus Dr. E. F. Armstrong writes on the enzymes, lactase, lipase, maltase, and the oxydases; Prof. G. Barger on laudanum, liquorice root, nicotine, and other alkaloids; Mr. C. T. Bennett on essential oils; Mr. J. Connah on liqueurs and cordials; Mr. Cribb on spices; Mr. C. A. Mitchell on oils, lard, and margarine; Mr. H. D. Richmond on milk; Mr. F. Scudder on meat extracts; and Dr. H. E. Watt on nux vomica and opium.

CHEMICAL REACTIONS AND THEIR EQUATIONS.

By I. W. D. HACKH, Ph.C., A.B., Professor of Biochemistry, College of Physicians and Surgeons of San Francisco. London: Chapman and Hall. 1922. Pp. 138. 6s.

THE difficulty which students have in fully appreciating chemical equations is well known to teachers of chemistry. The present volume has been written with the object of assisting a clearer understanding of the principles of chemistry so that the student should be enabled to balance any equation with care and rapidity. The subject-matter deals with symbols, formulæ, equations involving oxidation and reduction and the converse, reactions and their control, and types of chemical reactions and equations. The information presented is concise and free from errors.

LEHRBUCH UND ATLAS DER GASTROSKOPIE.

By Dr. med. RUDOLF SCHINDLER, Assistenzarzt der 2 med. Abteilung des Krankenhauses Munchen-Schwabing. Munchen: J. F. Lehmann. 1923. Pp. 132. 9s. 7d.

IN this book the author deals with the problems and possibilities of gastroscopy. Available types of instrument are described, and the technique of securing a complete examination of the internal surface of the stomach is fully gone into. The volume is illustrated by 20 coloured plates showing the appearances seen in gastritis, ulceration, malignant disease, and after gastro-enterostomy. It is impossible to read it without being deeply impressed by the possibilities of gastroscopy, and it is to be hoped that the subject will soon obtain wider notice in this country. The size, paper, and binding of this book are of a quality which makes the price demanded an exorbitant one; this is the more striking in view of the present rate of exchange with Germany.

A HANDBOOK OF NURSING.

Eighth edition. By M. N. OXFORD, formerly of Guy's Hospital. London: Methuen and Co., Ltd. 1923. Pp. 312. 6s.

Miss Oxford's Handbook of Nursing, which has reached its eighth edition, can be highly recommended to probationers in training. Young nurses may often be confused with the multiplicity and variety of new duties on entering hospital training, and this manual may help them considerably in understanding their work. Chapters which will be found specially useful are those on What to Observe in Nursing, Infectious Diseases, Monthly Nursing, and X Rays. The value of the short chapters on Anatomy and Physiology would have been enhanced by the addition of some clear illustrations. Miss Oxford's aim to supply in as simple a form as possible the knowledge essential for the comfort and care of the sick has undoubtedly succeeded, and the book should inculcate in young probationers the principles which underlie all good nursing.

OXIDATIONS AND REDUCTIONS IN THE ANIMAL BODY.

Second edition. By H. D. DAKIN, D.Sc., F.I.C., F.R.S. London: Longmans, Green and Co. 1922. Pp. 176. 6s.

Dr. Dakin clearly states the object of this monograph in one of the opening sentences of the introduction, where he says, "The statements that fats and carbohydrates are oxidised to carbon dioxide and water are no longer considered all-sufficient explanations of the chemical rôle of these substances in the animal economy." Unfortunately, this statement is only too common both among teachers and students. Metabolism has been studied and taught far too much from the anabolic standpoint. Thus, after an amino-acid has been de-aminised we lose all interest in it, dismissing it with the statement that carbon dioxide and water are the end-products. To show the complexity of oxidising reactions in general the author takes the apparently simple case of the burning of carbon

monoxide in air. That the reaction does not proceed according to the well-known equation $2\text{CO} + \text{O}_2 = 2\text{CO}_2$ is proved by the fact that water is an essential participant in the reaction. Furthermore, various observers have isolated formic acid and hydrogen peroxide as by-products. That such an apparently simple reaction should prove so complicated makes the physiologist and biochemist wonder what stages are passed through when fats and carbohydrates are oxidised. Dr. Dakin takes each group of food substances, as well as various bodies of biological importance, and traces the changes undergone by them in the body.

This volume, small as it is, forms a valuable addition to the series of monographs on biochemistry and will open up an entirely new field for many readers.

JOURNALS.

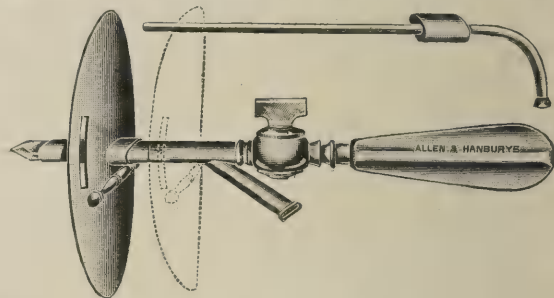
JOURNAL OF PATHOLOGY AND BACTERIOLOGY. April, 1923.—Robert Muir (Glasgow): Obituary Notice of James Ritchie, Professor of Bacteriology in the University of Edinburgh, Secretary of the Society, 1906-1921, and Editor of the Journal 1921-23.—S. P. Bedson (London): The Genesis of the Mammalian Blood Platelet. Studying the regeneration of platelets after the administration of a lytic serum, the author concludes that they do not arise from red corpuscles or leucocytes, but are an independent element, originally nucleated like the thrombocytes of birds but losing their nuclei at maturity, as do red cells. In another paper on immunity to antiplatelet serum the same author shows that this is not due to the development of an anti-antibody, the existence of which becomes more and more doubtful.—T. Toda (London): An Attempt to Group Human Platelets with Red-cell Grouping Sera. Results altogether negative.—J. Ségel (London): A Fungus Isolated from Guinea-pigs Inoculated with the Virus of Typhus Fever. The fungus and virus show a remarkable association in passage through a series of animals.—S. C. Dyke (London): The Passage of *Staphylococcus aureus* through the Kidney of the Rabbit. The organisms pass into the urine only when they have definitely damaged the kidney.—W. E. de Korte (Cape Town): A Paramycetoma (?) of the Forearm. A subcutaneous nodule developing after a slight injury showed marked overgrowth of epithelium and what is apparently a filamentous fungus.—E. M. Dunlop (Glasgow): The Wassermann Reaction in Scarlet Fever. There is no evidence that scarlet fever ever causes a positive reaction.—R. P. Smith (Glasgow): The Relationship of the Autolysin and the Wassermann Antibody in the Serum of a Paroxysmal Haemoglobinuric. The two properties of the serum are distinct.—E. M. Luce (London): The Size of the Parathyroids of Rats and the Effect of a Diet Deficiency of Calcium. Rats fed on a diet deficient in calcium show a consistent hyperplastic enlargement of the parathyroids.—V. Korenchevsky (London): The Influence of Removal of Sexual Glands on the Skeleton of Animals Kept on Normal or Rickets-producing Diets. Castration has no effect on bone-growth in rats.—The same author describes an outbreak of spontaneous rickets among laboratory stock rats due to careless feeding; bacteriological investigations lent no support to Morpurgo's infectious hypothesis.—S. R. Gloyne and D. S. Page (London): The Reaction to *B. tuberculosis* in the Albino Rat. Rats are naturally highly resistant to tuberculosis, though after injection the bacilli are absorbed and spread in the body much as they do in the susceptible guinea-pig; virulent organisms may be recovered from the tissues after several months. Rat serum has no special bactericidal properties, though phagocytosis is extremely efficient.—J. M. H. Campbell, G. H. Hunt, and E. P. Poulton (London): An Examination of the Blood Gases and Respiration in Disease, with reference to the Cause of Breathlessness and Cyanosis. The authors have made an extensive investigation of cases of heart disease, anæmia, polycythæmia, primary functional deficiency of the lung and cardio-renal disease, correlating the

laboratory findings with the clinical condition. The value of the work lies mostly in details, for which the original must be consulted. Generally the authors conclude that peripheral venous stasis is nearly always a factor in cyanosis as well as deficient arterial oxygenation, and that bronchial spasm is the most potent cause of breathlessness.—F. G. Macnaughton (St. Andrews): A Simple Emergency Medium for the Primary Growth of the Gonococcus. Blood clotted in ordinary broth.—L. Cobbett and D. Keilin (Cambridge): Mucoid Casts from the Vermiform Appendix. A curious case in which a large number of small spherical masses of mucin filled the appendix.—R. Donald (London): Rapid Histological Sections, Gelatin Embedded and Fixed Throughout the Preparing: Diathermy Excision of Diagnostic Pieces; A Simple Modification of Twort Staining; A Syrup-gelatin Mountant; A Slide Index Box.

New Inventions.

AN EMPYEMA TUBE.

I HAVE recently modified the empyema tube devised by W. Turner. The spear point of the trocar has been shortened; the innermost opening of the cannula has been retained and enlarged, and the two other lateral openings have been dispensed with, and the small oval sliding shield has been enlarged, its greatest diameter being now $3\frac{1}{2}$ inches, and reversed so that its concave surface now fits the convex chest wall. The additions are a tap fitted to the outer end of the cannula, to which a side-arm has been attached; and a small metal tube, with tapered plug to fit the tap. The tube allows of irrigation of the pleural cavity, either intermittent or continuous. These alterations are shown in the illustration. In use the



cannula is passed through a rubber disc, which is the shape of, and rather larger than, the shield. The rubber disc fits the cannula tightly and lies against the concave surface of the shield. Rubber tubing connects the side-arm with a suction apparatus, which is set working. The trocar and cannula are pushed into the chest through an intercostal space. The shield is clamped at a level permitting the cannula to project into the empyema cavity for not more than one inch. The trocar is withdrawn and the tap is shut at once to prevent any serious entry of air. The pus escapes, through the side arm, into the suction apparatus. The shield and rubber disc are fixed tightly to the chest with tapes and strapping. To irrigate the cavity, the outer end of the metal irrigating pipe is connected by rubber tubing with the reservoir of lotion. The tap of the cannula is opened and the irrigating tube is inserted into the cannula until its tapered end plugs the opening in the tap. The lotion drips or spurts according to the degree of pressure employed into the cavity. The mixture of pus and lotion is sucked through the side arm by the evacuating apparatus.

The instrument has been made for me by Messrs. Allen and Hanburys, Wigmore-street, London, W.

C. HAMILTON WHITEFORD, M.R.C.S.,
Plymouth. L.R.C.P. Lond.

THE LANCET.

LONDON: SATURDAY, APRIL 14, 1923.

ACCURACY IN DISPENSING.

AT the recent Guildhall Conference of bodies interested in National Health Insurance anxiety was expressed by representatives of approved societies lest panel patients were receiving drugs inferior in quality to those dispensed for private patients. We indicated at that time how little gravamen this charge has, inasmuch as the standard quality of each individual drug is necessarily that of the British Pharmacopœia. The discussion has since shifted from quality to quantity, and wide publicity has been given to certain evidence that dispensing lacks the necessary accuracy, with the result that insured persons do not get the quantity of the drug ordered. Dr. G. CLARK TROTTER, medical officer of health for Islington, pointed out in our columns that having occasion to test the dispensing of quite a simple prescription, he found that 6 out of 17 pharmacists fell short of accuracy, even when no account was taken of slight discrepancies. In a letter which we publish this week, Dr. J. P. WALKER, county medical officer of health for the Isle of Ely, gives further evidence of large discrepancy in the dispensing of a simple prescription containing glycerine and potassium iodide, the error running up to 20 per cent. or more, generally on the minus side. This, it should be added, was ten years ago, and the episode is noticed to indicate that a certain tolerance of irregularities may have been present for a long time. At the North London police-court recently a fine of 2 guineas was inflicted for supplying a bottle of physic deficient in sodium salicylate to the extent of 8.4 per cent., the pharmacist pleading in extenuation that the deficiency was small and that he was pressed for time. At the same court another pharmacist was charged with issuing a mixture deficient in potassium bromide to the extent of 27.1 per cent., the case being postponed for a further analysis. In other cases a prescribed ingredient was shown to be absent. At Salford a chemist was fined £3 for substituting a pill containing aloes and myrrh for aloes and iron, pleading a too casual glance at the prescription. At Hackney a pharmacist was fined 20s. and 10 guineas costs for selling a compound known in the London Insurance Pharmacopœia as Mist. Gent. Co., totally deficient in chloroform and hydrocyanic acid.

In regard to the Islington cases of defective dispensing the President of the Pharmaceutical Society of Great Britain wrote regretting that charges should have been brought publicly by a member of the medical profession against pharmacists, seeing therein an attempt to create antagonism between the medical and pharmaceutical professions. The Secretary of the Retail Pharmacists' Union also wrote to assure us that the general standard of accuracy in dispensing is satisfactory, and that the Union, through its Pharmaceutical Committee, is coöperating with the authorities in securing the highest possible standard for insurance prescriptions. We note that the Union has since issued a large displayed advertisement setting forth the high standard of training to which the pharmacist

is subjected, and pointing out that among 30 million prescriptions dispensed last year by the 5700 chemists belonging to the Union, only 11 were the subject of prosecution for faultiness, four of the charges being withdrawn. We hasten to assure both these professional associations that we were no party to a general charge of inaccuracy against practising pharmacists. But we regard the evidence as conclusive that certain pharmacists have not dispensed certain prescriptions with the accuracy which may reasonably be required of them, and we have no doubt that the Ministry of Health has been wise to ask the assistance of local authorities in securing accurate dispensing, especially in view of the fact that the Pharmaceutical Society has no disciplinary power to prevent an incompetent or culpable pharmacist from practising. We agree that it is not possible, nor is it necessary, to insist upon a high degree of percentual accuracy for every ingredient. Medicine bottles as at present manufactured differ considerably in content, the graduation cannot be accurate to the second place of decimals, the patient does not measure the dose with any great precision, and there is a wide margin in most cases between the therapeutic and the toxic dose. But the dispensing chemist before he receives his title has acquired an extensive knowledge of chemistry, including quantitative and qualitative analysis, after having passed a matriculation examination or its near equivalent. He is well qualified to know the value of precision and where it is imperative to be precise. The human factor necessarily enters largely into dispensing, which, as we know, is not a particularly remunerative part of the pharmacist's business. Nevertheless all good pharmacists do attain a practicable and reasonable degree of accuracy.

In respect of what is reasonably practicable the report recently submitted to the Public Health Committee of the county borough of Salford by its public analyst, Mr. G. D. ELSDON, is of special interest at the present moment. Three years ago, after conferring with the local pharmaceutical association, a workable scheme was devised of checking the practice of pharmacists by analysis of test mixtures. The scheme is roughly this. A prescription bearing the name and address of a panel patient is submitted by an unknown messenger to a panel pharmacist. The messenger having received the medicine calls the inspector into the shop, when the sample is then and there divided into three parts, one being left with the vendor, the second being delivered to the public analyst, and the third kept for reference in case of dispute. It was agreed between pharmacist and local authority that the strength of prescriptions should not differ by more than 10 per cent. from the truth, except in cases such as sodium bicarbonate, where a little more licence might be allowed, no hard-and-fast rule being laid down to cover every case. As a result of these analyses, the considerable laxity in dispensing at first found has shown great improvement; last year the proportion of gross error was only 5 per cent., compared with an average of over 20 per cent. in the years 1914 to 1918. Mr. ELSDON attributes this success to the friendly spirit which has existed among all the parties concerned. Pharmacists who were merely careless have become more careful, whilst the few who were really unfitted for their task by temperament or training are dropping out or are being removed from the panel. This result has been obtained without setting up an impossible standard and without harassing the pharmacist by administrative detail. It has been achieved without legal prosecutions or public scandal. Mr. ELSDON believes, and we agree with him, that a reasonable

scheme of checking combined with friendly coöperation between municipal officers and pharmacists would raise the standard of dispensing in other parts of the country to that now obtaining in Salford. There is no divergence of interest in the matter; pharmacists and doctors are alike concerned.

CRIME AND PUNISHMENT.

LAST week we dealt with insanity in relation to the criminal law, a problem recently brought into considerable prominence, and still waiting solution. But this question is only a part of the larger subject, crime and punishment, in which many thinking people are keenly interested. The number of books on prisons or prison reform published during the last year, the articles which recently appeared in the *Manchester Guardian*, and the public meetings to hear lectures or discussions, leave no doubt on this point. But just as in the matter of responsibility in relation to mental disease it is the lawyers and not the doctors who are the primary advocates of change, so in the larger problem it is doubtful whether the medical profession is taking the lead in insisting on more rational methods. It is true that two of the most important new books on crime have been written by Dr. M. HAMBLIN SMITH and Dr. MARY GORDON respectively, but the number of medical workers in this field is very limited. The meetings described are not usually organised or attended by medical practitioners, while the magistrates and others present sometimes complain of the lack of interest or understanding in their medical officer, or deplore the fact that no one is competent in their district to act as medical adviser to the Bench. It is idle to pretend that any qualified medical practitioner can do this; the student has no training in mental defect; his experience of insanity is insufficient to diagnose an incipient or difficult case, while psychology is practically a closed book.

How many medical practitioners, if asked, have any definite ideas or up-to-date knowledge as to whether treatment or punishment is the more hopeful method of dealing with crime? How many know what type of case is amenable to special treatment, still less what that treatment should be, or can say which are the unexplored fields most urgently demanding investigation? One of the correspondents to the above-mentioned newspaper stated that it would be greatly to the public advantage that 1000 consecutive unselected cases before the courts in Birmingham should be specially examined to determine what proportion of cases required such investigation, and incidentally to show how those requiring investigation could best be selected. Had this suggestion been made in regard to any other city than Birmingham or Bradford, always excepting London, would there be local psychological experts available? Such considerations led us to welcome the announcement in our advertisement columns of March 24th that a post-graduate medical course in crime and punishment would be again held at the Birmingham University in May. Although a fortnight's course is insufficient for training, it may be invaluable as a start to show the lines on which further experience should be sought. Those who would like to attend such a course, but hesitate under the impression that the systematic examination of delinquents is unlikely to become a matter of practical politics except in the remote future, would do well to note some of the circumstances that have led many to a fresh outlook on crime and prison life, and to consider how far they may be permanent. In the first place, the prison experiences in recent years of a large number of

educated and refined persons of both sexes, as conscientious objectors or suffragettes, have done much to enlighten public opinion. Many of these persons, no doubt, have recognised that prisons were not designed for such as they, and also that prisons may not affect ordinary delinquents in just the same way. Still, and at last, many realise that there are few on whom prison can be expected to have a good influence. Secondly, the advent of women into public life, and particularly their presence on the justices' bench, favours a new point of view. Feminine intuition has been quick to see that all is not well, and that radical changes are necessary. When those with such ideas look at the records available they find their worst suspicions confirmed; they learn that the majority of serious offenders have been convicted not once, but many times previously, and that nearly all habitual offenders begin their delinquent career at an early age. Lastly, but not least important, is the knowledge that where only doubt and uncertainty existed before, the new psychology has shed much light. Psychology is ultimately the science of human conduct. There is still much that is controversial, but one fact has been established—namely, that conduct is invariably the result of mental life; and all the causes which have been given as explanations of criminality are only operable in so far as they affect the offenders' mental life. This is the theme of Dr. HAMBLIN SMITH in his article in the last number of the *Howard Journal*, and more fully elaborated in his book "The Psychology of the Criminal." His ideas are confirmed in the January number of the *British Journal of Medical Psychology*, by Mr. CYRIL BURT, who shows that delinquency in the young is assignable to a number of factors, and that "psychological factors, whether due to heredity or environment, are supreme both in number and strength over all the rest." Dr. MARY GORDON insistently demands a psychological examination of offenders, while the plaint of less technical investigators is not that the handling of prisoners is unkind, but that it is non-understanding. Those who have studied the subject know that the proper examination of an offender is no light task. Mental defect and insanity must be excluded; a thorough physical examination is necessary, and in addition a searching psychological investigation.

The Birmingham scheme, for the recognition of those who in consequence of mental defect or other reason require treatment and not punishment, makes such an examination possible, alike for those remanded to prison or not in custody, when the justices consider it necessary. The annual reports show that of more than 450 cases remanded in prison for special examination less than 24 per cent. were subsequently sentenced to imprisonment, while of the smaller number remanded not in custody none were sent to prison, nearly all being placed under treatment rather than punished in any way. Such records prove the economy of the arrangement. They indicate that a larger number might be examined with advantage, particularly of less serious cases, many of whom will otherwise be serious cases at a later stage. Many of those placed on probation should be studied first and suitable conditions enacted in the order. The recommendation of some workers that delinquents should be studied not only in the courts and in prison, but also in the school or general psychological clinics, before they come under notice of the police at all, opens up other fields to the trained medical psychologist, who will not fail to realise that his work cannot be undertaken by the ordinary probation officer.

PAINTING AND LEAD POISONING.

THE story of the white lead controversy is a long one. It started in France, dating back over a hundred years to the time when, with the rise of modern industrialism, the custom was adopted of protecting surfaces with paint; in this country the plaster-front period of the Regency gave an impetus to the new fashion. Forthwith sprang up vested interests in the manufacture of the materials used and also complaints from the painters of sickness and deaths resulting therefrom. Meantime attention was diverted to lead poisoning occurring among makers of the white lead used and among potters where the same substance was used as a constituent of glaze; and powers were taken and enforced in this country under the Factory Acts for the protection of those employed. Investigation disclosed that lead poisoning resulted mainly from inhaling lead dust, and action taken to prevent such inhalation was followed by a splendid reduction of cases. Then, in 1911, committees were appointed to consider the use of lead materials in paints employed on buildings and on coaches and carriages; these committees examined the position carefully for over three years before issuing their reports. By this time France, in 1909, had passed a law, to come into force in 1914, prohibiting the use of white lead in paints, but the war intervened; in Belgium, Switzerland, Austria, and Germany regulations, more or less stringent on paper, had been adopted. But the results of these regulations were far from satisfactory, since plumbism among painters had hardly been brought below what was prevailing in this country. The House Painting Committee concluded—and the Geneva Convention, on Nov. 19th, 1921, has since reinforced the decision—that the use of lead in paints for internal painting should be prohibited. They also recommended its prohibition for external painting, although the position here was more difficult since other paints were less satisfactory; yet to permit the use of lead paints outside and prohibit them within seemed bound to create confusion and endless opportunities for evading regulations of prohibition. Moreover, there was evidence that with a demand non-lead paints capable of resisting the weather would soon appear; already in one instance, notwithstanding the suspension of most research due to the war, the expectation seems to have been fulfilled, for the Office of Works, after four years' tests, informed the Home Office in 1919 that, for priming coats of iron and steel work, several kinds of leadless paints had given satisfactory results. These results have naturally been severely criticised by the advocates of lead materials in paints. But the Coach Painting Committee, on finding that such concerns as the Daimler Motor Car Company, the Midland Railway, and the Bradford City Tramways had abandoned the use of lead paints with entirely satisfactory results, decided that others could follow these examples, and recommended prohibition of lead paints.

Just before the Geneva Conference was due last autumn to consider the matter, the British Government tied its hands by appointing a new departmental committee, on which the working painter was not represented. Nevertheless, the Geneva Conference agreed to a convention prohibiting lead paints for the internal painting of buildings after 1927, and instituting stringent regulations for the use of lead paints where not prohibited. The duty of the new Committee was clearly altered by this decision, and became that of determining how best the Geneva Convention could be carried out. To this aspect they seem to have turned their attention; and now,

after hearing 26 witnesses and meeting 13 times, they report.¹ They accept the Convention, but go even further in recommending the immediate prohibition of all dry rubbing down of painted surfaces. This process, on account of the dust generated, has long been accepted to be the main danger in the painting industry; but all practical witnesses before the 1911 committees stated that it could not be carried out damp. Recently, however, water-proof sandpaper has been introduced which permits damp rubbing down to be successfully adopted. The Committee then turn to the proposed regulations of the Convention for the house-painting trade, but can here see no hope of effective enforcement except through the goodwill and coöperation of the trade—i.e., except through inspection of the trade by the trade. When, however, the considered deliberations of the Committee are unhampered by the Convention, as in the matter of coach painting, they may be found to differ from the latter. Although as regards coach painting the Committee concluded that "there is a good deal more to be said for complete prohibition than in the case of house painting," and although what there was to be said was sufficient to lead them to accept prohibition for the internal painting of buildings, they "do not recommend prohibition" for coach-painting. Why?

INSTRUCTION IN MEDICAL PHYSICS.

WE publish in another column a letter from three of the examiners in physics for the triple qualification at Edinburgh, advocating the establishment in the medical curriculum of a definite course by a definite teacher of medical physics. We may anticipate at once the alternative views which the letter will produce. Some will be of the certain opinion that nothing in the nature of a further compulsory test should be added to the curriculum unless an equivalent in demand upon the student's time is subtracted. Others will suggest that the institution of such a compulsory course, if short and well-planned, though closed by a testing examination, would none the less assist rather than hinder the student, for comprehension of the principles of medical physics would bear fruit in most of the divisions of the medical curriculum. But all those who feel in this progressive way towards instruction in medical physics may not feel disposed to go so far as the letter from Dr. Alfred Daniell and his co-signatories, and undoubtedly the institution of another special examination would to-day be a confession of the failure of the existing course to meet its design. That design has been to examine the student at the beginning of his career in physics generally, leaving the special teachers in their turn to show him how the general information can be particularly applied. The demand for a definite course of medical physics at some later stage of the curriculum is a statement, in other words, that the teachers of the final subjects do not or cannot impart a knowledge of physics, in their medical application, so as to give the student a reason either for the pathological happenings which he is observing or the therapeutic technique which he is acquiring. Clearly honours physics cannot be taught to a medical student either before or during his curriculum; and if he is compelled to revise his knowledge at some point in the course the extent of that revision will always be a matter of dispute. The examiners in the final subjects could meet the situation, as it exists at present, by resolving to set in certain of the papers questions involving a knowledge of medical physics, but they would be loth to reject candidates whose inability to answer the questions might be due to absence of any facilities for acquiring the necessary knowledge.

¹ Report of Committee on Industrial Paints. H.M. Stationery Office, 1923. 2s. 6d.

Annotations.

"Ne quid nimis."

THE FUTURE OF MEDICAL BENEFIT.

IT has now been publicly announced that the Insurance Acts Committee of the British Medical Association is to meet the Ministry of Health on April 26th to discuss proposals in regard to the capitation fee for medical practice under the Insurance Acts. On May 12th the proposals of the Ministry and the opinion of the Insurance Acts Committee on these proposals will be circulated to the panel committees throughout the country; and on June 7th representatives of the panel committees are to meet, being fully instructed in the views and temper of their constituents. Dr. A. Cox reminded a meeting of practitioners a few days ago that this conference will not only be concerned with the amount of the capitation fee but also with the terms of service—that is to say, with the amount of professional time and effort which are to be given in exchange for payment. The position is not simply one of financial economy. When the Geddes Committee decided that the State purse was too impoverished to add its quota to that of employer and insured person in a national scheme of health insurance, the deficit was made up for the time being by accumulated funds at the disposal of approved societies; moneys, be it noted, which had been contributed by the three parties mentioned in excess of what was required at the time for medical and other benefits. Maybe the employer and the insured person consider that their present quota is sufficient. Maybe the National Exchequer is still unable to make its promised contribution. Nevertheless it is quite certain that a capitation fee must be paid which will obtain willing service from insurance practitioners, and it is also quite certain that some Government department must continue to control the incomings and outgoings under the Act. The Ministry of Health is in a position to assess the medical needs of insured persons and to allocate contributions equitably, and there is no doubt that the Ministry must remain as third party in any negotiations between the doctors and approved societies which these prefer not to arrange between themselves. As time goes on the duties of the chairman at this health conference, for this is what the position of the Ministry amounts to, will become less onerous. At the present time the chair remains. When settlement is reached insurance practice is entitled, in Dr. Cox's words, to a little blessed tranquillity, for no system on earth, least of all a complicated scheme of health insurance, can stand continual pulling up by the roots to see how it is getting on.

SCHOOL INTELLIGENCE AND HOME CONDITIONS.

THE question of the relative importance of heredity and environment in the upbringing of children is still unsettled, except in the minds of propagandists. A valuable contribution to the study of this question has just been published by the Medical Research Council, in the form of a report on "the relation between home conditions and the intelligence of school-children." Unfortunately, the study was interrupted by the death of Mrs. Frances Wood who collected the data, the material being tabulated and analysed by Dr. Isserlis. Mrs. Wood had intended to investigate the relation not only of home conditions, but also of physical health and hereditary parental abilities to the intelligence of children. Had all this been carried out with the same thoroughness and care that characterise the published report, it would have been no insignificant contribution to the solution of a problem with wide social, political, and economic implications. Nevertheless, as it stands, the report is a model for the study of these problems. The correlation between the school-child's intelligence and his environment

works out in Mrs. Wood's study at between 0.3 to 0.4, a lower figure, as Mr. Cyril Burt points out in a foreword, than has been obtained in previous work. By itself this only proves that improvement of home conditions may be expected to react upon the intelligence of the children, but the eugenicist may still contend that improvement of home conditions is largely dependent upon the hereditary qualities of the parents. It is much to be desired that the investigation should be pursued further on the lines originally intended.

HEAT PENETRATION.

Sol est remediorum maximum is a saying attributed to the elder Pliny, and no doubt sun treatment is as old as human culture, but its exact study is of recent date. An admirable chapter by Dr. A. Rosselet, lecturer on physiotherapy at Geneva University, on the scientific basis of heliotherapy is contained in Dr. A. Rollier's new book¹ on Heliotherapy, to which we shall return. Here we are concerned with the penetration of heat to the deeper tissues of the body. Dr. Rosselet regards it probable that the rise of temperature which takes place during sun-bathing, especially in well-acclimatised patients, is due in part to direct warming of the blood. In Finsen's Clinic at Copenhagen Dr. C. Sonne showed that luminous rays are far more effective in heating up the blood as it circulates in the skin than are the infra-red rays, and in this development of warmth he saw the principal physiological factor of sun treatment. It is generally agreed that the effect of direct sunlight exceeds in therapeutic potency that of any other variety of rays. The effect of light and heat rays on various tissues of the body has now been made the subject of close study at the National Institute for Medical Research, and in our present issue Dr. Leonard Hill and Dr. J. A. Campbell record some interesting results of experimental work, the temperature being determined by delicate thermo-electric couples mounted in hypodermic needles ingeniously designed by Dr. E. J. Schuster. The authors found that exposure of the whole body of a rabbit to the sun's rays at Hampstead rapidly increased the temperature of the deeper tissues; exposure of the head and upper part of the body alone was, on the contrary, followed by a fall of temperature. Local exposure of the head resulted in a definite increase of temperature of the scalp and brain. They came to the same conclusion as Sonne—namely, that the luminous rays actually heat up the subcutaneous tissues to a greater degree than do the non-luminous rays.

Another interesting study of heat penetration appears in the *Japan Medical World* for Feb. 15th, where Surgeon-Lieutenant N. Fukui records the effect produced by subjecting the testicle of a rabbit to the action of heat. He has found that heat produces very definite regressive changes in the seminiferous tubules, changes that are similar and just as intense as those effected by ligature of the vas or exposure to X rays. For the purpose of his experiments he employed sunlight, a powerful arc light, and warm water baths. Histological examination of the testicle after exposure to these agencies showed that selective destruction of the generative cells of the tubules had taken place, leaving the Sertoli cells and the interstitial cells of Leydig intact. Indeed, as after ligature of the vas, there would appear to have been some proliferation of the latter. A point of interest in the experiments is that a comparatively low temperature was sufficient to produce change; thus exposure of the scrotum of a rabbit to afternoon sunlight in summer, for a period of three hours, gave rise to the phenomenon termed by the writer "heat-testicle." Similarly a warm bath at 45° C., for the same period of time, produced identical changes. These observations, if confirmed, have a bearing on more than one problem in medicine. It is only within recent years that the importance of male sterility has been realised and the discovery that spermatogenesis is so sensitive to changes in the temperature of the testicles may throw light on

¹ Oxford Medical Publications, 1923. 25s.

otherwise inexplicable cases of azoospermia. Again, should the induction of regressive changes in the seminiferous tubules by exposure to heat prove to be effective in man, it would provide an alternative method of bringing about the artificial sterilisation of undesirable males. One of the objections raised to the enforced sterilisation of undesirables is the fact that up to the present an open operation is the only permanent method of achieving it. Exposure of the testicles to warmth or sunlight entails no risk or hardship to the subject, and should it be effective would afford a satisfactory solution to a difficult problem. It is, however, in the highest degree improbable that the regressive changes noted by Dr. Fukui are permanent and that lifelong sterility can be achieved by exposure of the testicles to such a low grade of heat for so short a period. Sterilisation by means of X rays, unless a particularly intense action on the testicle is achieved, is only temporary, and we should expect the same to hold for sterilisation by means of heat. The fact that Dr. Fukui has noted an increase in Leydig cells concurrently with regressive change in the tubules is of special interest at the present time when attention is being directed to Steinach's observations on the results of ligation of the vas. Dr. Fukui's work must be repeated and confirmed not only by experiments on other animals, but by observations on the human being before it is safe to make any deductions. If the degree of heat necessary for the degeneration of the seminiferous tubules is so slight it should be feasible to obtain evidence of diminished fertility in stokers, cooks, and Turkish-bath attendants, and thus to confirm or refute Dr. Fukui's laboratory observations on rabbits, dogs, cats, guinea-pigs, rats, and goats.

MUSCULAR DYSTROPHIES.

At the Devon and Exeter Medico-Chirurgical Society Dr. W. Gordon showed a case of pseudo-hypertrophic muscular paralysis, in which tenotomy for talipes equinus, performed by Mr. B. D. Dyball, had restored the ability to walk. Dr. Gordon pointed out how very greatly our conception of the muscular dystrophies had been simplified by accumulating knowledge of the rarer forms of disease. Formerly four varieties were separately described—the common pseudo-hypertrophic type and three much rarer varieties, atrophic from the onset—namely Erb's so-called "juvenile" type, Landouzy and Dejerine's "facio-scapulo-humeral" type, and Gowers's "distal" type. It was now known that, whereas the primarily atrophic varieties commonly occurred within affected families, sometimes one, sometimes another making appearance, pseudo-hypertrophy kept itself to itself. Hence it was sufficient for practical purposes to distinguish two types only of muscular dystrophy, the pseudo-hypertrophic and the primarily atrophic. Dr. Gordon laid stress on the following points of difference, eight in number:—

1st, and chief in respect of *prognosis*, the pseudo-hypertrophic died in nearly every case at or before puberty. The others commonly survived for many years.

2nd, and next in importance from the *diagnostic* standpoint, marked initial hypertrophy only occurred in the pseudo-hypertrophic.

3rd, regarding *treatment*, contractures were much more marked in the pseudo-hypertrophic.

4th, Pseudo-hypertrophics were generally diagnosable at 5 or 6 years of age; the others might begin at any age and generally at a much later one—for instance, Erb's misnamed "juvenile" type—usually first appeared between 15 and 35 but might begin in early childhood or in later life.

5th, Five out of six pseudo-hypertrophics were *boys*; the others were as often females as males.

6th, Pseudo-hypertrophics were much more apt to present *no history* of other cases in the family.

7th, Each type tended to *breed true*.

8th, The *muscles* most affected differed to a certain extent. Thus, although the lower parts of the great pectorals and the whole of the latissimi dorsi usually wasted much in both types, the pseudo-hypertrophics never had the face affected, although masseters and tongue rarely enlarged, whereas in the other type the face might suffer and, indeed, suffered first and characteristically in the Landouzy-

Dejerine variety. In pseudo-hypertrophics the trapezius rhomboids, or serratus were rarely affected, equally rarely the infraspinatus, supraspinatus, and deltoid in the other forms; while in pseudo-hypertrophics it was just these three muscles that were commonly and considerably enlarged.

In both types the diagnosis rested on three common features: The absence of fibrillation in the affected muscles, in contrast to the progressive muscular atrophies of spinal origin; the absence of all sensory changes; and the absence of reaction of degeneration. The case shown could be diagnosed at a glance, although only one group of muscles was pseudo-hypertrophic—viz., the calves. The coincident atrophy of the latissimi dorsi and of the lower fibres of the pectoralis major; the common history of difficulty of going upstairs; the obvious waddle; and the attempt to "climb up his own legs" when seated on the floor and told to get up—only frustrated by his pronounced club-feet—were sufficiently distinctive. Lifted by his armpits the boy simply slipped through the hands. To discover, said Dr. Gordon, pseudo-hypertrophic paralysis it was essential to look at the back. Only one muscular group was usually enlarged in front—namely, the thigh extensors; if hypertrophy was confined to one group of muscles, it was usually behind, the three commonest sites being the calves, the buttocks, and the infraspinati, the next commonest the supraspinati, deltoids, and triceps. Two muscles wasted primarily in all forms of the disease—namely, the latissimus dorsi and the lower part of the pectoralis major. Prognosis in pseudo-hypertrophic paralysis was unhappily of the worst—scarcely any case passed puberty; but it was well not to be too confident, for one patient was said to have survived to 40. Once bedridden, the downward course was greatly accelerated. Dr. Gordon concluded by calling attention to our lack of resource in muscular complaints generally, apart from so-called myalgias. Even in myositis the accepted remedies were not strikingly helpful. In muscular dystrophies, in myotonias, in amyotonia congenita of Oppenheim, and in myasthenia gravis medicine had hitherto to confess its impotence.

VETERINARY PRACTICE OF A BYGONE AGE.

THE second volume of Sir Frederick Smith's great History of Veterinary Literature in Britain During the Eighteenth Century is appearing in instalments as a supplement to the *Veterinary Journal*. In the first instalment the author notes that animal diseases were treated by two classes of practitioner, known as *farriers* and *cow-leeches*, both of whom borrowed their knowledge from writers on human anatomy and physiology. There was little original work or study of cause and effect, although certain individuals who came from among the ranks of the surgeons—e.g., Gibson, Osmer, and Taplin—built up good veterinary practices. In 1714 Thomas Bates, F.R.S., surgeon to H.M. household, dealt with an outbreak of cattle plague on lines differing little from those employed in cattle epidemics of the present day. But many of the books were written by laymen who were copyists. In 1730, however, William Burden, a captain of cavalry, endeavoured to convince the public that "the study of veterinary medicine and surgery is the work of an educated man and not the function of farriers, coachmen, and grooms." The influence of Solleysel, the French veterinarian, on much of the literature of the day was very noticeable. Henry Bracken, M.D., 1687–1764, to whom we owe the really enlightened books of the period—"Farriery Improved" and "The Traveller's Pocket Farrier"—himself the son of a Lancaster surgeon, although an unblushing plagiarist, brought in some clear reasoning of his own, and his treatment was simple, rational, and clean. He was also a firm believer in the prevention of disease, although he lived in a time when the liver of an eel, the flesh of the viper, the penis of a tortoise, and the moss from human skulls were stock therapeutic agents. Progress in animal medicine was necessarily very slow until the foundation of veterinary schools at the end of the century, first in France and

afterwards in this country. The lesson can clearly be drawn from Sir Frederick Smith's narrative that no real advance is possible in any branch of medical science without facilities for research into the causes of disease. The veterinarians of the eighteenth century were for the most part travelling round in a circle with no clear or intelligent guidance; their premises being false, their practice was devoid of useful result.

ASYLUM NURSING IN PARIS.

LAST November, after a preliminary study by Dr. A. Antheaume, the supervising committee of the Asiles de la Seine decided that in certain male wards of the Paris asylums the male attendants should be replaced by female nurses. The change, Dr. A. Rodiet tells us in a recent issue of *Le Progrès Médical*, is strenuously resisted by the attendants themselves, who take their stand on the ground that the morals of the nurses will be corrupted. Dr. Rodiet, who is himself in charge of the Ville-Evrard Asylum, points out that the experiment has been tried elsewhere, especially in Holland, where male attendants have disappeared, and that the experimental stage has been passed in more than one country. It is curious that he makes no reference to Britain, although at Morningside Prof. G. M. Robertson broke the first ground, and the authorities of Cardiff City Mental Hospital have carried the substitution of women for men to greater lengths than are contemplated in Paris. For the French proposal amounts to no more than to employ nurses for helpless and harmless patients who are confined to bed, general paralytics in the third stage, and congenital imbeciles or idiots. These limitations would certainly protect the nurse from offensive conduct on the part of patients. We must not overlook the advantage of a hospital atmosphere and the sympathetic care of women in cases where recovery is possible and capable of acceleration by congenial environment. It was with this object that the nursing of male patients by women was introduced in this country.

CHRONIC COWPERITIS.

Dr. Harry Cohen and Dr. Ralph L. Dourmashkin¹ of New York, who report an illustrative case, remark that in spite of the enormous quantity of literature on the various aspects of gonorrhoea, surprisingly little has been written on the subject of chronic infection of Cowper's glands as the underlying cause of recurrent attacks of chronic urethritis. The onset of acute cowperitis is ushered in by chills, rise of temperature, pain and tenderness in the perineum, and pain on defecation. The involvement is usually unilateral and is shown by redness, swelling, and induration in the perineum. Resolution takes place or the process goes on to suppuration, the abscess bursting either into the urethra or perineum and occasionally giving rise to a urinary fistula. The gonococci may remain in Cowper's glands for months or years and be the cause of reinfection of the urethra. The writers maintain that many cases of chronic urethritis attributed to prostatitis are really due to chronic cowperitis. The diagnosis of chronic cowperitis can be made by palpation of the inflamed gland, as in the case of chronic infection of the prostate or seminal vesicles. When Cowper's gland is enlarged it can be felt just anteriorly to the membranous urethra, which is in the middle line and at the lower margin of the prostate. Urethroscopy is also a valuable guide, as it shows the inflamed mouths of the ducts. Unlike its homologue Bartholin's gland, Cowper's gland is rarely infected by any other organism than the gonococcus. Tuberculosis of the gland, however, has been described by a few writers, so that in chronic cowperitis, with or without a fistula, a careful search should be made for tubercle bacilli. Treatment of chronic cowperitis consists in massaging the gland at regular intervals by inserting the index finger into the rectum and compressing the perineum with the thumb outside.

¹ Urologic and Cutaneous Review, March, 1923.

If massage is unsuccessful, excision of Cowper's gland is indicated, just as in the case of chronic gonorrhoea in the female where excision of Bartholin's gland has been advocated. In the case reported by the writers, in a man aged 28 suffering from chronic gonococcal urethritis, massage failed to produce any relief, but complete recovery rapidly took place after excision of an inflamed left Cowper's gland.

CONGENITAL ANOMALIES OF THE EYE.

IN another part of this issue Miss Ida C. Mann deals with a number of congenital anomalies of the eye which are liable to be confused with acquired conditions. It is important for the practitioner who takes any part at all in the treatment of eye diseases to be acquainted, not necessarily with every sort of anomaly which is liable to occur, but with those which may simulate the result of disease. A good example of this is the remains of pupillary membrane, a developmental structure which sometimes fails to be completely absorbed, leaving strands of tissue which are liable to be mistaken for synechiae resulting from acute iritis. The diagnosis should be easy with the help of a corneal loupe, but cases occur in which considerable care is required to determine whether the strands are attached to the margin or to the anterior surface of the iris. The most common congenital anomaly to be seen with the ophthalmoscope is caused by the persistence of the medullary sheath of the optic nerve fibres beyond the optic disc, where in normal cases it stops, causing white patches on the surface of the retina which to the uninitiated are liable to be mistaken for choroidal atrophy. In these and other cases, however, the question of treatment hardly arises, so that the results of a wrong diagnosis are not as a rule serious. Far different is it in certain cases where appearances due to congenital anomalies resemble what may be due to serious or even fatal disease. Here a little knowledge may be a dangerous thing. There is such a thing as pseudo-optic neuritis, a congenital condition; but he would be a bold man or woman who without a large experience in the examination of eyes should dismiss a disc with blurred margin after one examination as a case of this nature. If there is any suspicion of optic neuritis, the only safe rule is to keep the case under observation, at any rate, for a time. Similarly with congenitally large physiological cups, it is sometimes a matter of the greatest difficulty to distinguish them from glaucoma cups, and the result of examining the patient too hastily may be to lose valuable time in the diagnosis of an insidious disease. Other examples of possible disasters from a too hopeful diagnosis, given by Miss Mann, are the confusion of melanotic sarcoma with a subconjunctival mole, and the diagnosis of glioma as a persistent hyaloid artery.

PREVENTIVE INFANT FEEDING.

Prof. H. J. Gerstenberger, professor of pediatrics at Cleveland, Ohio, contributes to the March number of the *American Journal of Public Health* a practical résumé of our present knowledge of the means for prevention of nutritional disorders of infants and young children. Nutritional disorders in infants owe their occurrence to a variety of causes, such as hereditary factors, infections, bad housing, lack of sunlight, and inadequate diet, among which the most important, in Dr. Gerstenberger's view, undoubtedly is the last named. He adds that "those who state that infant feeding as it is practised even to-day in the big general way is successful are either blind, ignorant, or deceitful." His review of the percentage, or American, system of infant feeding is valuable historically, the results from the standpoint of general successful application having been small and disappointing; and he lays down the following as the qualifications needing to be fulfilled by an artificial food when the use of this cannot be avoided. The food must be complete if rickets and other nutritive disorders are to be avoided; the method of preparation must be

simple; the initial cost must be within the reach of the mass of consumers; it must be free from pathogenic germs; and it must "keep." Evidently a food which meets all the above requirements cannot be obtained in every home, and although success may be achieved in some instances by domestic methods, Dr. Gerstenberger arrives at the conclusion that "only one plan will work that will accomplish this purpose and at the same time be hygienic, economic, and practical as well, and that is the manufacture of such a product on a large scale and in a form that is handy for both parents and family physician." Such attempts have been made in the past, and they have not succeeded because (a) fat and mineral adaptation were not considered; (b) the importance of the regular addition to the diet of the anti-scorbutic vitamin was not recognised; and (c) the need of the anti-rachitic vitamin was unknown. Experience in Cleveland has shown that with the use of milk in dry or sterilised liquid form altogether satisfactory results can be obtained, given attention to the three points indicated above.

ALFRED HENRY FISON.

Dr. A. H. Fison, D.Sc. Lond., the secretary of the Gilchrist Educational Trust, who lost his life recently by an accident while fixing up a wireless aerial, was a very accomplished man and forceful personality, and his death is a real loss to the cause of scientific education. Born in 1857, he came of a family with old-fashioned Puritan ideals, which seem to have included a distrust of scientific knowledge and research. But in spite of his early environment—or, some may think, perhaps in consequence thereof—he adopted a scientific career, and became not only a lecturer with the rare gift of imparting his special information in an interesting manner to a general audience, but also a sound administrator and a teacher who earned the esteem of both pupils and colleagues. After graduating in science at the University of London he was appointed demonstrator under Prof. Carey Foster in University College. Here, later, he became assistant professor of physics in the College, and also staff lecturer in physics for the Oxford University Extension Delegacy. His appointment as lecturer in physics at Guy's Hospital dates from 1906, and the similar position which he held at the London Hospital Medical School, from 1910. The story of Dr. Fison's life is fully told in biographical notes published in the last issue of the *Guy's Hospital Gazette*.

THE TREATMENT OF SYPHILIS WITH BISMUTH.

IN the paper published on this subject by Dr. C. Levaditi in THE LANCET for March 31st it was stated that the first experimental tests of the toxicity of bismuth with a view to its exhibition in syphilis were carried out as long ago as 1889 by Balzer. Considering how remarkably effective this drug has recently proved itself in syphilis, it is strange that its usefulness in this respect should have been disregarded for so long. It is not as if bismuth were seldom given for other diseases; it has, for example, been extensively used for many years in the treatment of gastric ulcer and other diseases of the gastrointestinal tract, and the drug must often have been given for these diseases in persons also suffering from syphilis. Why, then, was its action on syphilis not noticed earlier? However, the impression which bismuth has made as an antisymphilitic remedy during the last few years on our French colleagues seems to have been very great. In a recent number of *Le Progrès Médical* Dr. M. H. Grenet has published details which form a useful supplement to Dr. Levaditi's paper. The preparations in use may be classified according as they are soluble or insoluble, and the indications for each are practically the same as for the soluble and insoluble preparations of mercury. An intramuscular injection of a soluble preparation of bismuth is the safest, for if toxic symptoms occur they can quickly be arrested by

discontinuing the injections. But if an intramuscular depôt of an insoluble preparation has been left, and toxic symptoms supervene, it is practically impossible to remove the depôt. On the other hand, such a depôt provides a more continuous and prolonged action of the drug, the injection of which need not often be repeated. Dr. Grenet makes it abundantly clear that bismuth is far from being a safe drug to inject. He does not give it by intravenous injection as recommended by certain of his colleagues, and he prefers the intramuscular route, partly on account of its greater simplicity. But even when given by intramuscular injection bismuth may give rise to stomatitis, hæmorrhagic enteritis, nephritis, and other complications. Indeed, as far as the kidneys are concerned, bismuth would seem to be more dangerous than mercury. On the other hand, though an excess of bismuth may injure the nervous system, the drug seems to be more effective than its two chief rivals in the treatment of syphilis of the nervous system. It is claimed for bismuth that it is particularly useful in cases which have proved arseno- and mercurio-resistant. But it is disappointing to read that bismuth has a less rapid effect on the Wassermann reaction than the arsenical preparations, and Dr. Grenet is wise in not claiming for bismuth a position of unquestioned pre-eminence among the antisymphilitic drugs. It may have a great future, but it has yet to stand the test of those late syphilitic diseases of the nervous system which have in the past so often mocked successful "cures."

THE OPEN PULMONARY TUBERCULOSIS OF OLD AGE.

THE tendency to regard the chronic bronchitis and emphysema of old age as a manifestation of active pulmonary tuberculosis seems to be growing. Many a case of infection in early childhood has, it is true, been traced to a bronchitic grandparent or a pensioned nurse with "asthmatic" proclivities. The literature of this subject is fairly bulky, and some of it reflects rather hardly on the aged as sources of contamination of the young. One of the most striking papers on this subject was published several years ago by Oppenheim and Le Coz, who performed necropsies on 330 old men, 60 of whom had died of tuberculosis. Among these 330 they found definite tuberculous lesions in 246, and in as many as 103 cases the tuberculous disease was still active. Thus they found active tuberculosis in 30 per cent. of their cases. In *La Presse Médicale* for March 24th Dr. P. Halbron and Dr. G. Potez have published observations which suggest that in being allotted the sinister rôle of tuberculosis carriers the aged may have often been maligned. The material examined consisted of about 1200 old men living in a "retreat." Among them there were 500 under medical treatment, and among these again 40 were selected for special examination. Certain of them had records of hæmoptyses and pleurisies, and there were signs of diffuse bronchitis, emphysema, and pleurisy. In as many as 21 of the 40 there were signs of apical lesions. In 15 out of 18 cases examined by the X rays signs indicative of tuberculous lesions were found. An exhaustive search was made for tubercle bacilli in the sputum, many sputum-positive cases being expected, but in none were tubercle bacilli found. This surprising result was confirmed by the findings in 21 necropsies. In as many as 17 there was, indeed, evidence of tuberculosis, but it was invariably arrested and inactive—never acute or even showing signs of chronic activity. The authors suggest that the comparatively sheltered life led by these old men may, at any rate partly, explain why their tuberculous lesions showed no activity, and it is possible that Oppenheim's and Le Coz's subjects showed such a high incidence of active tuberculosis because they were largely recruited from the most destitute classes. If this is the correct explanation of the remarkable difference in the two series it is a cogent argument in favour of taking

better care of the aged than is usually the case. Although the findings of Dr. Halbron and Dr. Potez are a useful sedative to scaremongers, it is obvious that a certain proportion of senile bronchitics and asthmatics must be disseminators of tubercle bacilli, and in justice to the non-tuberculous bronchitics it would be well if in every case of senile bronchitis the sputum were examined.

PRUSSIC ACID FUMIGATION.

A TRAGEDY at Chicago has recalled public attention to the dangers to human life of prussic acid fumigation. It appears that the owners of a basement restaurant, desiring to rid their premises of the attentions of the cockroach, entrusted the job to a man professionally engaged in the extermination of insect pests. This operator appears to have been at some pains to seal openings leading from the restaurant into the upper parts of the same building and to warn the other occupants to keep their windows open during the night. But an opening giving passage to a water-pipe was overlooked, with the result that the gas generated by the action of sulphuric acid on sodium cyanide escaped into a second-floor apartment to such purpose that six occupants lost their lives. There is no vestige of doubt that in prussic acid we are in possession of a handy and highly efficient vermin-killer, although its bactericidal action may be small. Unfortunately the gas is no respecter of persons, and we can only hope that the United States Government, which has insisted on the use, under proper safeguards, of hydrocyanic disinfection for ships arriving at American ports will also insist on its limitation in civilian communities to duly accredited officers. The amazing toxicity of the combination of one atom each of hydrogen, carbon, and nitrogen should preclude its use as a fumigant by anyone not directly responsible to the local sanitary authority. A few more such accidents as that which occurred in Chicago and the civilised world will refuse to have anything more to do with such a treacherous weapon.

THE CONTROL OF GOITRE IN MICHIGAN.

In a *Bulletin* issued from his department of health, the new Sanitary Commissioner for Chicago, Dr. Herman M. Bundesen, admits that goitre is on the increase in that city as well as along the shores of Lake Michigan and in the region of the Great Lakes in general. A survey of the public schools is now taking place in order to obtain exact information as to the extent of the affection amongst school-children, and a campaign of education amongst them will follow. Official goitre clinics are to be established throughout the city of Chicago. Dr. Bundesen himself thinks that the maximum of prevention coupled with the minimum of effort will be obtained by giving iodine continuously between the ages of 11 and 17 years. He quotes the result of two and a half years' treatment and observation amongst school-girls in Akron (Ohio), where some 2000 pupils were induced to take 2 g. of sodium iodide twice yearly. Among these only five individuals developed goitres, while among a similar number not taking prophylactic treatment nearly one-quarter showed thyroid enlargement. The conception of goitre as an iodine-deficiency disease is steadily gaining ground in the Western States of America, since it was found that in Portland (Oregon) and in Seattle and Tacoma (Washington) a rapid increase in goitre followed on an installation free from iodine brought from the Cascade Mountains.

We are informed that the British Drug Houses, Ltd., and Messrs. Allen and Hanburys, Ltd., working in conjunction, have overcome the technical difficulties of making insulin and are now prepared to supply it in moderate quantities. Their product is to be known as the A.B. brand. Although some thousands of doses have been made, the quantity available at present will not suffice to meet all requirements. Preference will therefore be given in supplying hospitals and medical men possessing facilities for pathological testing.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XV.

THE TREATMENT OF INTESTINAL WORMS.

Tape-Worms.

THE secrets of success in the treatment of cases of tape-worm are (1) proper preparation of the patient, and (2) adequate dosage of the vermifuge. The patient should be kept on a liquid diet (1½ pints of milk and 1 of beef-tea) for 48 hours. During this period he should remain at rest, preferably in bed, and the bowels should be thoroughly cleared out by an efficient daily aperient—e.g., 5i. sulphate of soda t.d.s. Early on the morning of the third day he should be given a saline purge, and two hours afterwards the vermifuge should be administered. Liquid extract of male fern is usually employed, the dose being 1 drachm for a child and 1½ drachms for an adult. It may be given either in 15 capsules or as a draught made up with mist. amygdalæ co., and flavoured with a little oil of peppermint. If the capsules are used, one may be given every quarter of an hour until four or six have been taken. Two hours later a purge should be administered. Castor oil, though often employed, is not to be recommended for the purpose as some poisonous constituents of male fern are soluble in it. It is better to use black draught (mist. sennæ co.) or a seidlitz powder. If the bowels have not acted within an hour they should be emptied by an enema. The motions should be passed into a vessel containing warm water, and should be strained through black muslin to facilitate the search for the head.

Even when the above directions are carefully followed failure to get away the head will result in a good many instances. In that case there is nothing to be done but wait until segments reappear in the motions, and then to repeat the treatment. Other vermifuges are not likely to be more successful, but pelletierine tannate is worth a trial. It may be given after the usual preparation of the patient, in a dose of 8 gr., followed in two hours by 1 oz. of castor oil. It is not to be recommended for children below the age of 10.

Before the war I was in the habit of using the preparation known as filmaron with great success. It consists of the active principle of male fern dissolved in castor oil, the dose for an adult being ½ oz. or more. It is a German preparation, and is not now obtainable in this country. Chloroform and turpentine have also been used, but in the doses required are not devoid of risk. If chloroform is tried 1 drachm should be shaken up with 1 or 2 minims of croton oil, and given in half a tumblerful of milk whilst fasting. I have had no personal experience of this plan, but it has been highly spoken of.

Round Worms.

Santonin is an effective remedy for this form of parasite. The dose for an adult or a child of 12 years is 5 gr., and for a child of one year, 2 gr. It should be given in the morning on an empty stomach either as a powder, with the addition of ½ gr. calomel and 2 gr. of compound scammony powder, or in an emulsion containing ½ oz. castor oil. "Yellow vision" and redness of the urine may result, but are of no importance and disappear in 24 hours. As prophylactic measures all drinking water should be boiled, and raw vegetables avoided or thoroughly washed before consumption.

Thread-Worms.

The old-fashioned enemata are often effective if persistently used. The proper strength is 1 oz. of salt to the pint, and the injection should be repeated every other morning for a month. Infusion of quassia may be used instead, in a strength of 1 in 40 (which is stronger than the B.P. infusion), or the salt may be

added to the infusion. The injection should be given warm through a funnel and tube, the pelvis being raised. One and a half pints may be given to an adult, and 6 oz. or more to a young child.

A convenient local treatment is the use of suppositories containing $7\frac{1}{2}$ gr. of strong mercurial nitrate ointment. (In the case of children below the age of 4, a smaller suppository may be used.) One of these suppositories is inserted every other night. A little blue ointment inserted nightly into the rectum is perhaps as good. Amongst internal remedies santolin may be used in the same way as for round worms, or male fern as for tape-worm. Sulphur also is often effective in old-standing cases. It may be used either in the form of a morning dose of a sulphate water, or one or two sulphur lozenges may be given after each meal for prolonged periods. The writer has found it very useful in old-standing cases of thread-worms in adults.

Whatever treatment is adopted, it is important to take measures against re-infection. With this object the child should wear such sleeping garments as make access of the fingers to the anus impossible, and a little white precipitate ointment should be inserted into the anal canal and smeared round the orifice at bed-time. The same precautions should be taken, as regards diet, as in the case of round worms.

In all chronic and recurring cases the amount of starchy and sugary food should be cut down—patients have been cured by adopting a diabetic diet—and regular action of the bowels ensured either by the use of rhubarb and grey powder or of paraffin. There can be no doubt that the appendix often serves as a breeding ground for thread-worms and that the bowel can be constantly re-infected from it. In obstinate and old-standing cases in adults removal of the appendix has therefore been suggested in order to root out the parasites, but I am not aware that operation has ever actually been done solely with this object.

ROBERT HUTCHISON, M.D. Edin.,

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Special Articles.

BODY HEAT AND EFFICIENCY.

THE fear of exposing the healthy body to cold, a tradition perpetuated by the popular nomenclature for infections of the nasal passages, should be finally extinguished by the results of the further observations with the kata-thermometer¹ just published. For too long hothouse conditions, suitable for the failing powers of the aged, for the injured in a state of shock, and for those suffering from chronic inflammations of the respiratory passages, have been regarded as equally suitable for the young and healthy. For fear of "catching cold" children were confined indoors in inclement weather, over-clothed, and at the same time exposed freely to massive infection in crowded places, while the need of abundant open-air exercise, to make them eat and metabolise their food, was neglected. The kata-thermometer was introduced by Dr. Leonard Hill, F.R.S., to measure the cooling and evaporative power of the environment of the skin and respiratory mucous membrane, since the suitability of atmospheric conditions for healthy individuals had been found to depend largely on properties not measurable by the ordinary thermometer.

In former green books (Nos. 32 and 52, Special Report Series, Medical Research Council) the results of earlier investigations were outlined, and the present volume represents the advance in the study of the kata-thermometer since their publication. Many new points have emerged. While it is not definitely estab-

lished that conditions condemned by the results of these studies do directly increase either morbidity or mortality, it is, at any rate, proved that atmospheric conditions, classified on the objective basis of kata-thermometric readings as unsatisfactory, are hard to endure; that in every case in which subjective sensations were controllable by objective test on industrial output, the test gave proof of diminished efficiency; and that the tempo of the fundamental metabolic processes of the body responds rapidly and considerably to changes of atmospheric condition. Certain interesting side issues have arisen. The desirability of habitual exposure of the young to cool atmospheric conditions is proved positively by the wonderful vigour of children undergoing open-air treatment, and negatively by the reluctance of those long accustomed to high temperatures and deficient cooling power to use the means provided for their mitigation. For example, potters, who start work at the age of 14, get so acclimatised to high temperature that they feel uncomfortable without it and do not take full advantage of the windows provided. Acclimatisation certainly increases the difficulties of applying the results of kata-thermometric readings to industrial conditions, but it is now established that mostly the worker's comfort as well as his efficiency is greatly increased by adequate air movement. The selection of an exact index of comfort has been found difficult. Under certain conditions, as when men are working naked in deep mines, the wet kata-thermometer affords a very exact index. When clothes are worn, however, the close comparison no longer holds. If it is known that the air temperature is a reasonable one the dry kata cooling power may be accepted as a fair index of comfort. This must be read in conjunction with the wet bulb reading and the dew point. We have not at the present time sufficient information to show what amount of air movement is desirable at various levels of wet bulb temperature, but it is gradually being collected in different industries.

Atmospheric Conditions in the Workshops.

The adequate investigation of the atmospheric conditions in a workshop is a laborious process. Observations have to be made at various times, seasons, and places. Again, the nature of certain industrial processes requires special atmospheric conditions, whereas in others no relaxation of normal standards need be required. Among the industries in the latter group investigated, in boot and shoe factories conditions were found to be fairly satisfactory, in printing works much less so. In the former group are certain textile processes where a hot and humid atmosphere, essential to the maintenance of the quality and quantity of the material woven, causes much discomfort to weavers in summer. Here, by the use of suitable ventilating fans, or an ingenious method of attaining the same end—attaching strips of material to the moving heald roller of the loom, the movement of air in the vicinity of the worker, and consequently his comfort, may be greatly increased. A comparison of conditions in several laundries led to the belief that in many cases the temperature could be lowered and the ventilation improved to the relief of the employees; while in potters' shops the workers themselves will have to be educated to take advantage of the ventilation provided before more can be fairly demanded.

General Studies.

We have commented mainly on the industrial aspect of the work, recorded by Dr. H. M. Vernon, but actually only a small part of the physiological investigations detailed in this report is concerned therewith. Other sections include a technical study of the kata-thermometer as a physical instrument by Miss D. Hargood Ash and Dr. Hill; a comparison of kata-thermometer readings in temperate, alpine, and subtropical climates, with a note on the effect of increasing or lessening the humidity of the air in a room by Dr. Hill; kata-thermometric comparisons of methods of heating and ventilation by Mr. T. Bedford and Mr. T. C. Angus; ventilation tests on board a

¹ The Kata-thermometer in Studies of Body Heat and Efficiency. Medical Research Council, Special Report Series No. 73. H.M. Stationery Office. 1923. Pp. 196. 5s.

large Atlantic liner by Mr. Angus; and observations on metabolism during rest and work, with special reference to atmospheric cooling power, by Dr. Hill, in collaboration with Dr. J. Argyll Campbell. In this section is a note on the preservation of life in shipwrecked persons, which may be of great practical importance. It is proposed to substitute rafts for boats on ships, as rafts can be piled on deck in larger numbers. The provision of concentrated food or drink in the lockers is regarded as of little importance compared with the problem of preserving body heat. The conclusions reached from experimental drenching of a most self-sacrificing volunteer is that the complete covering even of wet clothes by thin mackintosh suits, which could be stored in the lockers, would afford great protection and thus contribute largely to the preservation of life in survivors of the wreck.

Three appendices by Dr. G. H. J. Schuster, Miss May Smith, and Mr. Angus conclude a report which, with its predecessors, will long remain the reference for those undertaking investigations of atmospheric conditions.

The observations summarised in these reports are sufficient to indicate the value of kata-thermometer readings in factories, workshops, and on board ships, where incidentally the use of heated air for purposes of cabin ventilation is likely to be superseded in the future by fresh air combined with direct heating, radiators being employed where required. Even a considerable outlay in installing better systems of ventilation would repay itself in many shops and ships, and it is evident that further controlled systematic investigations on the pattern provided will lead to valuable results.

MEDICINE AND THE LAW.

MARRIAGE AND PROFESSIONAL CONFIDENCE.

A CORRESPONDENT inquires how far a medical man is "right in telling a wife what is the matter with her husband, if she asks," and states the case which prompted the question. The husband had contracted syphilis many years before his marriage, and there was no evidence that he had ever infected his wife. His symptoms pointed to some affection of the nervous system, the actual cause and name of which the wife demanded to be told, refusing to be put off with any evasion of her inquiries. What should she be told? There is a good deal of difference here from the usual difficult position summarised by Dr. Amand Routh in an article on "Syphilis and Marriage" in THE LANCET of March 31st. Here Dr. Routh was referring to the position of a medical man desirous of preventing the marriage of a syphilitic patient, male or female, who refuses to desist from his intention in response to advice. He pointed out that to warn the parents of the other contracting party, or that other party, himself or herself, might not only be regarded as a breach of confidence, but might form the subject of an action for defamation. The latter risk, we suggest, should be disregarded as trifling, for no judge or jury would be the least likely to treat such a communication as anything but privileged, if the medical man failed to prove it true in substance and fact, but could show also that he had not made the allegation rashly. Of the question of professional secrecy the same certain language cannot be used: opinions differ as to the medical man's duty, and every practitioner must therefore bear the responsibility of his action. No one can fall back upon an inviolable rule, and there is no law of the State enjoining professional secrecy. The patient's secret should be rigorously kept subject to conditions sometimes affecting particular cases, and the difference between the situation of the person already married who has not contaminated the partner, and that of the person proposing to marry who may contaminate the partner, is obvious.

This is held to be the ethical attitude of the medical profession. It is not required that a medical man should go to prison for disobeying a judge's order to

give evidence in the interest of justice, and there must be occasions and conditions when the most scrupulous professional conscience would acquiesce in the departure from principle. Such occasions and conditions are of infinite variety, and occur not only with regard to venereal disease, but as to what may be called "guilty secrets" generally; and not only with reference to possible revelation to a husband or a wife, but with reference also to revelation to other relatives, such as parents, or to strangers. Again, information may be sought from the doctor, or circumstances may suggest that he ought to give it unasked. The imaginable conditions are so varied that it has been found only possible to suggest a general principle of guidance. The patient's interests, physical or otherwise, must be the first consideration of the medical adviser, who must upon some occasions weigh against these the interests, physical or otherwise, of other persons.

In the particular question referred to us by our correspondent, it is not clear whether the patient would suffer or gain in respect of his health and treatment, or in other respects, by his wife being informed as to the cause of his illness; nor is it clear whether or not the husband might with advantage be induced to inform her himself. Upon the facts as stated it hardly seems that the wife would have any right to know more than her husband chose to tell her. The medical man has every right to protest, where he can do so, against being made a conspirator.

A DANGEROUS IMPOSTOR.

A man, who had signed his name to a bogus medical certificate as R. Cunningham Strachan, M.B., Ch.M. Edin., without having any such qualifications, was fined recently at the West London police-court £10, with the alternative of 28 days' imprisonment. He got off lightly, for the certificate which he signed was to enable a teacher to absent herself from her duties, as suffering from gastric catarrh, whereas in fact she was resorting to the house of a woman, named Maude Olive Beaumont, in order to have an illegal operation performed. It is true that there was no evidence that Strachan knew there was to be such an operation, or indeed that he even saw the girl, but she afterwards died owing to the operation, and Beaumont was sentenced to seven years' penal servitude at the Old Bailey, a sentence richly deserved. It is perfectly evident that Strachan must have known that the certificate would be used for some wrong purpose, whether he knew what that purpose was or not, and the danger to the public is considerable if certificates purporting to be issued by medical men can be given by any fraudulent person with comparative impunity. There was another person concerned with the death of the girl, who got off scot-free—namely, the man who introduced her to the abortionist, and who had had recourse to the same woman before; unfortunately his evidence was necessary in order to obtain her conviction.

INFANT INSURANCE.

An important case has come before the Shoreham Petty Sessional Justices. It was a prosecution under the Friendly Societies Act of 1896, Herbert Ward, an insurance agent, and H. M. Mackintosh, the Hove branch manager of the Pearl Assurance Company, being summoned for paying money on the death of a child under 5, which, added to other amounts payable, exceeded £6. There was also a summons against the defendants for paying money on the death of a child without inquiring what other amount had been paid. Mr. A. J. R. Haggard, for the Registrar of Friendly Societies, pointed out to the justices that a very important principle was involved in this question of child insurance. The Act was passed to prevent traffic in insurance of infant life and also to remove the bad moral effect caused by allowing parents to profit by the death of their children. There was no suggestion in these proceedings that any of those abuses had been practised. The Company had done its best at all times to ensure that the sections of the Act should be observed, and the Registrar of the Friendly

Societies was confident that the Company on realising that a mistake had been made had been zealous in trying to remedy it. Yet the Registrar, in view of the importance of the principle involved, felt he must take some action. The child was insured in three societies. Ward, the Pearl agent, made a payment of £3 15s., but it was subsequently ascertained that this amount, with other sums payable by the other societies, brought the amount payable to just over the £6 maximum. Mr. H. E. Trangmar, on behalf of Ward and Mackintosh, pleaded guilty to a highly technical offence, which had been inadvertently committed; and Mr. Graham Hooper, for the Pearl Assurance Company, pointed out that it was through the immediate action of his clients that the matter was brought to light. Directly they knew of the fact they took steps for the matter to be brought to the notice of the Registrar. The Chairman of the Bench (Mr. W. A. Hounson) said the justices regarded the case as one having been brought forward in the public interest. It was of the first moment because it was evident that long years of consideration and very considerable legislation had taken place in order that abuses of this sort might be prevented. In the particular case only a small amount (5s.) was at issue, and the facts showed that the legislation had produced a very good effect, inasmuch as this was a very exceptional case. There would be no conviction, but the court costs (16s.) would have to be paid, while the application for £5 5s. expenses was perfectly legitimate and must be paid.

WHOLESALE SMUGGLING OF DANGEROUS DRUGS.

A man named Humphrey pleaded guilty recently at the Guildhall Police Court to a charge of unlawfully offering to procure morphine, heroin, and cocaine for the Tong Say Company, of Amoy, China, contrary to R. 3 of the Dangerous Drugs Regulations of May 20th, 1921. The transaction upon which the charge was based was not a solitary attempt to procure drugs, for the accused had previously almost carried through at least one deal of considerable magnitude, and his proceedings, as described by counsel, proved, if it were necessary to prove it, that only energetic and effective control, with the coöperation of all countries where abuses may take place, can check the trade in dangerous drugs—or, indeed, render it anything but an attractive business for unscrupulous and ingenious persons. Humphrey combined a hardware business in the City with the secret shipping of opium products in large quantities, and in sending the peccant stuff to China, was introducing it into a country in the teeth of prohibition by the Government. He was sentenced to the maximum penalty now provided, a fine of £200 and six months' imprisonment in the second division, or three months more in default of the payment of his fine.

His case supplies an authentic record of facts pointing to the necessity for heavier penalties being made possible in such cases, for the particulars disclosed proved the magnitude and the profits of trade. The conviction of Humphrey should show his fellows that the vigilance of the police, in spite of obvious difficulties in their way, cannot always be evaded, but the punishment may not deter persons from taking the risk. The goods forwarded by Humphrey were obtained from dealers in France, of which the French Government will presumably take cognisance. Somehow the police in China had information of a shipment which led to the arrest on board ship at Hong-Kong of a Japanese named Tieuw, who in due course received a sentence of imprisonment. Under his control there were found cases which contained certain furniture, two sofas and four armchairs, in the upholstery of which were concealed 2500 oz. of cocaine and 2400 oz. of morphine, estimated by counsel as representing 4,375,000 and 2,100,000 doses respectively. In England intercepted correspondence to and from Humphrey expressed the regret of both parties for the misfortune of Tieuw, knowledge that their documents had been seized, and of the consequent necessity for a new code, and the willingness

of Humphrey to conduct fresh business. He offered to procure and ship a quantity of cocaine, said to be equivalent to 87,500,000 doses, which he suggested could be sold in China at 48s. per oz. to realise an estimated profit of £79,000, with a possibility of sale at a price as high as 200s. per oz. In an early contract quoted Tong Say had agreed to purchase from Humphrey not less than 1000 lb. per annum. It is not to be wondered that the Chinese Government is anxious to stop such a trade or that persons can be found to conduct such illicit retail.

The police of both countries are to be congratulated upon the capture of Humphrey, but the suppression of such traffic must depend upon the deterrence of unscrupulous individuals by heavier penalties, and upon the activity of the Government of the countries where manufacture takes place.

TUBERCULOSIS.

The Late Results of Sanatorium Treatment.

Prof. F. Reiche,¹ chief of the General Hamburg-Barmbeck Hospital, has lately published statistics showing the results of sanatorium treatment 17 years or more after discharge. The patients belonged to the insured class, and, thanks to the coöperation of the insurance officials, Prof. Reiche was able to trace most of his old patients, in spite of the length of the interval since their discharge. There were 1866 patients given sanatorium treatment for pulmonary tuberculosis in the period 1895–1904. It was found that in 1921—i.e., after an average interval of 22 years—46.9 per cent. were still perfectly fit for work, 18.2 per cent. were invalids, and 35.2 per cent. were dead. Many of the deaths were due to causes other than tuberculosis. All the patients were examined by Prof. Reiche in person, and he is sure that only very few could have been swept into the sanatorium net without being tuberculous. But quite a half of the total number of cases represented slight and early forms of the disease, and in as great a proportion as 24 per cent. two courses of sanatorium treatment were given, and in 7 per cent. three such courses were given. With these encouraging statistics for his text, Prof. Reiche urges the importance of institutional treatment for the tuberculous.

New York's 1922 Tuberculosis Death-rate.

New York has again established a record for a low tuberculosis death-rate. In 1922 this death-rate was 99 per 100,000 inhabitants, and never before has it been below 100. In 1921 it was 103. In 1910 tuberculosis caused 13 per cent. of all the deaths in New York; in 1922 this figure was reduced to 8 per cent. In the *Bulletin* for January and February, 1923, of the New York Tuberculosis Association, in which these figures are given, the future of the tuberculosis campaign is discussed. Although the tuberculosis death-rate has been reduced in New York by 53 per cent. since 1910, the falling curve now shows a tendency to flatten out, and there are still more than 25,000 sufferers from tuberculosis in the city. In addition to the measures already in force, three others are advocated as a means to giving "a death-blow to tuberculosis." They are: (1) Pasteurisation not only of milk but of all dairy products such as cream (including ice-cream), butter, and cheese; (2) extension of the system of "nutrition classes" to all children found under-nourished in the schools; (3) the establishment of industrial health services by anti-tuberculosis institutions, especially dispensaries, and by other health agencies.

The Unreliability of a Single Pirquet Test.

To show how misleading a single Pirquet test may be in childhood, Dr. O. Wiese² has published the results of the tuberculin examination of 800 children between the ages 5 and 15, by his assistant, Dr. H.

¹ Beitr. z. Klin. d. Tuberk., 1923, liv., 210.

² Ibid., 1922, liii., 470.

Rennebaum. A positive reaction to the first Pirquet test with old tuberculin was obtained in 537 cases. Of the remaining 263 cases which gave a negative reaction, as many as 170, or 64.6 per cent., were induced to give a positive reaction by repeating the Pirquet test with old tuberculin, by substituting Höchst cuti-tuberculin or Merck's diagnostic tuberculin for old tuberculin, by combining old tuberculin with "perlsucht" tuberculin, or by giving intracutaneous injections of old tuberculin in various strengths. It is thus evident that a single Pirquet test is of comparatively little value if it is negative.

Fashions in the Diagnosis and Treatment of Tuberculosis.

A combined report,³ dealing with the activities of 34 German hospitals in 1921, is an instructive mirror of the changes taking place in the attitude of the German medical profession both towards diagnosis and treatment. With regard to diagnosis, the fashion at present is to label almost every child of weakly constitution as a case of bronchial gland tuberculosis. A few years ago the diagnosis would have been anæmia, and it is perhaps an advance that this loosely formulated diagnosis is beginning to drop out of fashion. With regard to fashions in treatment, heliotherapy appears to have been practised only in 2 to 3 per cent. of all the cases of pulmonary tuberculosis. But the quartz-mercury lamp was used in 19 per cent. of the male patients and 21 per cent. of the female patients. Tuberculin probably enjoys greater popularity in Germany than in this country, and about 20 per cent. of the sanatorium patients were given some form of tuberculin treatment. The cutaneous and percutaneous routes are the most popular at present, and Ponndorf's and Petruschky's methods of giving tuberculin through the skin appear to be extensively adopted in general practice, as well as in institutions in Germany. As many as 12 of the 34 institutions had not practised artificial pneumothorax treatment in the year under review, and only about 7 per cent. of the patients in the second and third stages of the disease had been given this treatment. There were, however, certain sanatoriums in which up to 15 per cent. of the second- and third-stage patients were given lung collapse treatment. This practice of issuing a combined report of a large group of sanatoriums is one that might well be followed in this country; pooling knowledge and experience has a stimulating as well as a corrective effect.

ROUMANIA.

(FROM OUR OWN CORRESPONDENT.)

Congress of Physicians in Bucharest.

At the recent Congress of Rumanian Physicians, held in Bucharest, Prof. Jacobovici delivered an introductory address, in which he stated that the status of the medical practitioner was at present depressed to that of the artisan. Hence, he said, arose struggles for appointments, demands for a medical strike. Some medical men had been smitten with the desire of gain; an element of industrialism had entered certain curative institutions and sanatoriums owned by doctors, who united the functions of medical directors and hotel proprietors, their aim being insufficiently distinct. The whole range of medicine could not now be covered by one individual; the pathology and treatment of tuberculosis, of heart, intestinal and infectious diseases, of diseases of tissue change, and especially of nervous diseases, tended to become specialised. The delegation of nervous diseases to special departments was inevitable, but care must be taken to keep the latter in close touch with internal medicine.

Child-Suicide.

Dr. Bálint, of Sibin, has published a record relating to 200 cases of child-suicide in Europe; he notes that 50 cases were collected by Ferriani,

³ Ibid., 1922, liii., 459.

49 by Siegert, and 42 by Deutsch, of Budapest. The various causes are classified as predisposing, exciting, and general; the most striking fact that emerges is that the children who destroy themselves are generally nearing the close of school-life. The stress of examinations appears to be the most important single cause, whilst punishment, or the fear of it, poverty, and unhappiness of the parents, all contribute a part. Children who commit suicide are seldom, or never, normal, but many of them are intelligent and well-disposed, with a fair prospect of usefulness in life. The chosen form of death differs in various countries; in Germany, for instance, drowning is most frequently selected; in Hungary poison is the commonest means of self-destruction.

"Pathological Delirium."

The following case was lately described in the *Erdévi Orvosok Lapja* (Transylvanian Medical Weekly): A landowner at Bistritz was accused of attempting to murder a servant by firing at him with a revolver in the course of a quarrel. Defendant's counsel pleaded that the prisoner was not responsible for his act, as he had been drinking, and as a doctor had declared him to be suffering from "pathological delirium," in consequence of free indulgence in intoxicants. The prisoner was acquitted. A legal paper has condemned the judge's attitude, arguing that were a drunken man held not to be criminally responsible many crimes would frequently go unpunished, including murder and other serious offences against the person.

March 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Health Reform and Dail Earann: A Congress of Teachers.

AN important debate took place at the annual congress of the Irish National Teachers last week, when, by invitation of the congress, Sir James Craig, M.P., ex-President of the Royal College of Physicians, gave an address on the medical inspection of schools. An Act was passed in 1919 at Westminster making compulsory in Ireland the medical inspection of school-children, and regulations for the carrying out of the Act were adopted by the Local Government Board and approved by the Board of National Education. The Act, however, has only now been put in force, and the public requires education as to the necessity for it. Sir James Craig made an excellent case, and obtained the full sympathy of the national teachers, a body whose goodwill is essential for the successful carrying out of any system of school inspection. He also took the opportunity of pressing forward the demand for the establishment of a Ministry of Health in the Free State.

The debate following the address was of good service, as it showed that the teachers were fully awake to the importance of safeguarding the health of the young. The speech of Mr. Thomas Johnson, leader of the Labour party in Dail Earann, was specially important as laying down a definite health policy for his party. He said that the public required to be trained to these ideas, and should be told on every occasion, whether asking for national or local funds, what the country could afford, as the cost was going to be a very serious question. But the true wealth of the nation was to be found in the men and women of the nation, and here was a chance for a good investment. They must not economise in public health or in education, and he was glad that Sir James Craig had emphasised the necessity for a Ministry of Health, where he would certainly be supported by every member of the Labour party. The medical profession were, he added, much further ahead than the public, and they could safely follow the profession in their teaching.

The Ministry of Local Government has now made a statement, through a representative, to the *Freeman's Journal*, in which the sympathy of the

Ministry is avowed. "Practically all the matters referred to," said the representative of the Ministry, "are being examined by our experts, and the Ministry have taken steps to acquaint themselves fully with the conditions of legislation on health matters on the Continent and America . . . As regards the question of the central authority, it may be observed that the Ministry of Local Government at present included all the important functions of the Ministry of Health in England." The latter statement is erroneous, for the National Health Insurance Commission is not under the Ministry of Local Government, but in the department of the Minister for Finance.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

It is announced that Surg. Rear-Admiral Alexander Maclean, D.S.O., will succeed Surg. Rear-Admiral William Bett, C.B., in the medical charge of the Royal Naval Hospital, Haslar.

ROYAL ARMY MEDICAL CORPS.

Maj. T. C. Lucas, half pay list, late R.A.M.C., is placed on ret. pay on account of ill-health contracted on active service.

Capt. C. J. H. Little to be temp. Maj. whilst empld. as Dep. Asst. Dir. of Pathology.

Capt. A. A. B. Scott retires, receiving a gratuity.

TERRITORIAL ARMY.

Maj. J. C. Burton, having attained the age limit, is retired, and retains the rank of Maj.

The undermentioned relinquish their comms. and retain their rank: Capt. J. T. Samuel, E. W. Griffith, W. Alexander, A. F. B. Shaw, and O. C. O'Sullivan.

Capt. D. A. R. Haddon and J. E. G. Thomson resign their comms. and are granted the rank of Maj.

Lt. E. H. Ponder (late R.A.M.C., D. Force) to be Lt.

Second Lt. J. Smart (late The Cameronians) to be Lt.

General Hospitals: The undermentioned, having attained the age limit, are retired, and retain their rank except where otherwise stated: Lt.-Cols. J. Barlow and G. S. Middleton; Maj. R. H. Parry, J. H. Pringle, T. K. Monro, J. G. Andrew, J. B. McK. Anderson, J. K. Love, W. MacLennan, and H. Walker; Capt. D. Lamb, J. R. Riddell, R. S. Fullarton and J. Patrick (all granted the rank of Major); Capt. J. Hamilton, A. N. McGregor, A. B. Kelly, A. S. Tindal, D. W. Russell, J. Maclean, F. Macrae, E. Mackay, J. A. C. Macewan, J. D. Holmes, A. Fraser, D. Fyfe, J. G. Tomkinson, J. H. Martin, J. Laurie, R. B. Ness, J. McC. Johnston, J. Carslaw, J. Towart, J. Morton, A. A. Young, W. W. Christie, A. McLennan, E. G. Fortune, J. Gilchrist, A. H. Edwards, M. L. Taylor, J. Gracie, D. Watson, and C. Kerr (granted the rank of Maj.).

Supernumerary for Service with the O.T.C.: Lt. E. J. T. Thompson (late H.L.I.) to be Lt. for service with the Medical Unit of the Glasgow University Contingent, O.T.C.

TERRITORIAL ARMY RESERVE.

Capt. J. H. Wilkinson, having attained the age limit, is retired and retains the rank of Capt.

Capt. J. Browne, from General List, to be Maj.

Capt. E. D. Richards, from General List, to be Capt.

DEATHS IN THE SERVICES.

Inspector-General William Harris Lloyd, R.N., whose death on April 2nd, at the age of 87, we announced in these columns last week, was the oldest officer of his rank in the navy. Born in 1836, he qualified with the M.D. St. Andrews and the L.R.C.P.I. in 1856 and immediately joined the navy as a surgeon. He first saw service in the *Calcutta*, in which ship he took part in the China War during 1857-58, and was awarded the medal with clasps for Canton and Taku. In 1862, when serving with the flagship *Nile* in North America, he took charge of some yellow fever cases which had occurred in the screw sloop *Rinaldo*, and later became a staff surgeon. In 1866 he was appointed to the *Jason* in American waters. In 1870 he was appointed for special duty at Haslar, afterwards to Lisbon Hospital, and later to the Admiralty. In 1884 he was made Deputy Inspector-General of Hospitals and Fleets. At the International Congress of Medicine in London in 1881 he was secretary of the section of military surgeons, and in 1887 represented the Admiralty at the International Medical Congress at Washington. From 1888 to 1890 he was senior medical officer of the naval hospital at Hong-Kong, and from 1892 to 1895, with the rank of Inspector-General, he was senior medical officer at Plymouth Hospital. He was appointed honorary surgeon to Queen Victoria in

1894, an office which he has held under the succeeding sovereigns, and retired from active service in 1896. Inspector-General Lloyd married in 1870 Phoebe, a daughter of Lieutenant-General Vincent of the Bengal Army, by whom he had two daughters.

Correspondence.

"Audi alteram partem."

INTERNATIONAL PUBLIC HEALTH.

To the Editor of THE LANCET.

SIR,—The Second International Interchange of Public Health Officers, held under the auspices of the Health Section of the League of Nations and organised by the Society of Medical Officers of Health, having completed its course in Great Britain on April 10th, the visiting health officers are proceeding to Austria and Switzerland for further studies.

At the moment of departure the foreign delegates to this interchange are happy to avail themselves of the columns of THE LANCET in which to voice some expression of their appreciation of the magnificent opportunities for study which have been placed at their disposal, and of the courtesy with which all arrangements have been carried out. This is not the time to present a critical analysis of the current health practice of England in detail. That will come when the delegates, after careful study of the extensive reports and documents with which they have been furnished, and a resurvey of their own notes in perspective, are in a position to hand in their reports to their respective governments. But at the present time the outlines of the composition are before them, and a sufficiently impressive picture it makes. What the visitors intend to refer to at present is not the public health system of Great Britain, but rather to the course of study which they have enjoyed the privilege of taking here. On this subject they are of one opinion, that it was wisely planned, and has been carried out in the most efficient and graceful manner, so as to set a standard for future interchanges of this nature which it will be difficult to maintain, and perhaps impossible to surpass.

The delegates feel that it will be impossible for them to thank by name the hundreds of officials who have contributed with unfailing courtesy and patience to their instruction and comfort, or even to mention the various government departments which have planned and contributed to the programme, or the voluntary organisations which have joined with the rest in their entertainment. Let us say to all of these earnest, public-spirited men and women, who spend their lives in the service of humanity, that they have given us freely of their best, that they have instructed our minds and have touched our hearts, and that we are grateful. The task remains to us to turn to the best account the effort which has been expended here in behalf of human welfare.

We are, Sir, yours faithfully,

ANTON SMOLA,
ERNST BREZINA,
Austria.

I. H. APERS,
G. F. TIMBAL,
Belgium.

Y. MASEK, *Czecho-Slovakia.*

MAX CHRISTIANSEN,
BENDIX POULSEN,
Denmark.

G. G. W. BORG, *Finland.*

E. F. EMERIC,
ANDRE CAVAILLON,
P. J. DE BOISSEZON,
France.

FERENCZ WOLF, *Hungary.*

ROCCO RONCA,
MARIO COLINA,
Italy.

London, April 10th, 1923.

GORO KASHIDA, *Japan.*

ANDRES DIESEN, *Norway.*

K. KARAFFA-KORBUTT,
BRUNO NOWAKOWSKI,
STANISLAS STYPULKOWSKI,
Poland.

PETER STOENESCU
Roumania.

ALEXIS N. SYSSIN,
I. G. GELMAN,
L. GINTON,
Russia.

NATHALIE NICOLAJEVITCH,
Serbia.

M. NORDMAN, *Sweden.*

ARTHUR M. STIMSON,
GROVER A. KEMPF,
U.S.A.

MEDICAL PHYSICS.

To the Editor of THE LANCET.

SIR,—We desire to bring before your readers our views regarding the teaching of medical physics in the later years of the curriculum. We understand that it is suggested in Edinburgh that the student might obtain some teaching of medical physics from the physiologist, some from the ophthalmologist, some from the laryngologist, &c., but we are of opinion that unless a definite course by a definite teacher, who is qualified to teach medical physics, is attended, and unless this is followed by a definite examination ad hoc, the subject would not receive the study and attention which it deserves. The information would be patchy, important points would inevitably be omitted, and the instruction would lack the consecutive and coherent character which is essential for an efficient course.

We are, Sir, yours faithfully,

ALFRED DANIELL, M.A., LL.B., D.Sc.,
DAWSON TURNER, B.A., M.D., F.R.C.P.E.,
M.R.C.P. Lond.,

WILLIAM GEORGE SYM, M.D., F.R.C.S.E.,
Examiners in Physics for the Triple Qualification.
Edinburgh, March 31st, 1923.

THE ADMINISTRATION OF ANTI-DIPHThERITIC SERUM.

To the Editor of THE LANCET.

SIR,—May I be permitted, as one who has been for many years and still is responsible for the care of a large number of cases of diphtheria annually, to offer a few remarks on the two points connected with the treatment of that disease which have been discussed in your columns during the last fortnight? First, in respect of the intravenous injection of the antitoxic serum, of the superiority of which Dr. Poul Iversen, as you state in your annotation on p. 709, writes with such conviction. Judging by the results of experiments on animals the intravenous method should be the best. But has it been proved in practice to be so? Dr. Iversen does not help us to decide this point, for he gives no details of the therapeutic results of the cases he treated; he does not even tell us how many of his patients died; nor has he given any information as to the ages of the patients and the nature of the attacks. Apparently, however, the sole object of his paper is to show how the patients stood the injections.

Now if one thing is certain in respect of the antitoxin treatment of diphtheria it is that if patients are brought under treatment early—that is, on the first or second day—they nearly all recover and rarely suffer from complications. That result has been obtained by the method of subcutaneous injection and by the use of small and moderate doses. It would, therefore, appear to be quite unnecessary and, in view of the possibility of the occurrence of rigors and collapse such as are recorded by Dr. Iversen, even undesirable to employ the intravenous method in mild attacks. But it might be beneficial in severe cases, which are usually also late. The method was tried in a few such cases many years ago at the Eastern Hospital. I was not impressed with the results; nor was I impressed with the results of the series of 45 cases reported by Dr. J. Biernacki and Dr. J. C. Muir and the 20 reported by Dr. D. L. Cairns. There is certainly a practical objection—namely, the difficulty of getting the serum into a vein in the case of a resisting child who is suffering from a severe attack of diphtheria. In such cases the superficial veins are collapsed and empty, and it is anything but easy to get the needle into a vein and keep it there. Dr. Biernacki and Dr. Muir bore witness to the reality of this difficulty when they advocated the dissection of a vein under a general anæsthetic.

Secondly, as regards the question of dosage raised by Dr. Ker, while I am in agreement with him generally, I do not agree that the Ministry of Health are extravagant in recommending general practitioners to

administer 8000 units in cases provisionally diagnosed as diphtheria. But as my colleague Dr. Frederic Thomson, of the North-Eastern Hospital, exactly expresses my views on the subject, I need not repeat the arguments he uses in his letter to you of March 31st. Dr. Ker states that an unreasonable dread of anaphylactic shock deters many practitioners from injecting antitoxin early. That is Dr. Ker's experience in Edinburgh, but it is not mine in London. I attribute the lack of early specific treatment to two causes, the delay in waiting for the results of a culture and the failure on the part of the patient or his friends to seek medical advice at a sufficiently early moment. Dr. Ker calls attention to the remarkable fall in the case-mortality of diphtheria which followed the introduction of serum treatment and was undoubtedly effected by very moderate and even actually small doses. It may interest him and your readers to know that so far back as July, 1896, Lord (then Sir Joseph) Lister pointed out the same fact in a letter which I have in my possession, wherein he was discussing the question of the necessity of increasing the strength of the serum supplied by what was then known as the British Institute of Preventive Medicine.

I am, Sir, yours faithfully,

E. W. GOODALL.

North-Western Hospital, Hampstead, N.W.,
April 9th, 1923.

To the Editor of THE LANCET.

SIR,—In your issue of April 7th I notice a reference to an article by the late Dr. J. Biernacki and myself on this subject made in 1904. In this it is inferred that we recommended the method. I have not the paper before me, and it was written many years ago, but I have a clear recollection that we were very doubtful, after trying it in a number of cases, whether it presented any definite advantage over the usual subcutaneous method, and we practically discontinued to use it at Plaistow Hospital. I had quite forgotten that we practised giving an anæsthetic to small children for intravenous injection, and I think it must have been in a very small number of cases. I cannot help thinking at any rate that a method presents grave drawbacks if it needs a general anæsthetic in a disease like severe diphtheria, where the blood pressure and output of urine are already seriously affected and where the danger of setting up vomiting is so grave. The intravenous method would have to show very decided superiority to make habitual general anæsthesia justifiable. Yet it is precisely in small children that the gravest cases occur.

I am, Sir, yours faithfully,

J. C. MUIR.

Whipps Cross Hospital, Leytonstone, E., April 9th, 1923.

SERUM DOSAGE IN DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—In reference to Dr. Claude Ker's note on this subject in your issue of March 31st, he has not taken into consideration the great differences there may be in the virulence of diphtheria in different places at different times. For the type of diphtheria present in Bristol from 1910 to 1921 doses of from 4000 to 10,000 units were in all cases sufficient to obtain arrest of the disease and disappearance of the membrane. In 1921 the type of disease suddenly altered and a type of disease arose in which the membrane still rapidly grew with the onset of great cervical oedema on giving these doses. This type was characterised by great oedema of fauces and neck and delayed formation of membrane, which frequently did not show itself until the third or fourth day, causing great difficulties in diagnosis, by which time the patient was moribund. The disease was highly infectious and many of the staff were attacked, with one death from acute toxæmia, in spite of injections totalling 30,000 units, of which 10,000 were given on the first day without influencing the disease. (These disasters are now avoided by Schick's method.) In fact, so great was

the alteration in the effect of the doses as usually administered that it was not until I had tried every kind of antitoxin on the market that I realised that the poor results of our usual doses were not due to inactive serum but to an alteration in the type of the disease. The case-mortality in this hospital has undergone three alterations since 1900: 1902-07, 6.4 per cent.; 1908-16, 4.8 per cent.; rising in 1922 to 8.2 per cent.

In this area the medical officer of health circulates all practitioners from time to time, advising the dosage which is based on the type of disease prevalent at the time. This is a far wiser plan than attempting to set standards for the whole country. The Memorandum of the Ministry of Health advocates too low dosage to arrest the type of disease still prevalent in this area, but happily now becoming less virulent. I consider that the great differences in dosage suggested by various authorities in various countries are accounted for by wide variations in virulence which may occur in this disease and has occurred during my own period of observation of the disease during the last 14 years. As regards Dr. Ker's statement that 2000 to 3000 units given in the first couple of days would produce a phenomenal fall in diphtheria mortality, our own cases here utterly disprove it for our present type of disease. Of the last 80 fatal cases in this hospital, 19 received doses of from 2000 to 10,000 units within the first 48 hours while awaiting bacteriological confirmation before admission, but these amounts were insufficient to prevent death. It is very unfortunate that an authority of Dr. Ker's eminence should be found suggesting small doses while many of us have been trying to persuade our medical brethren to give large doses. No doubt the doses suggested by him would arrest the type of disease now prevalent in Edinburgh and prevalent in Bristol from 1908 to 1921, but his doctrine would be utterly misleading if applied to the type of disease we have had here during the last two years, in which death frequently occurred within two or three days of the onset of the disease from an overwhelming toxæmia.

I am, Sir, yours faithfully.

B. A. PETERS,

Chief Medical Officer, Ham Green Hospital, Bristol.
April 6th, 1923.

BURIED RADIUM EMANATION TUBES.

To the Editor of THE LANCET.

SIR,—It is not likely that the claim of Dr. Walter Stevenson (THE LANCET, April 7th) that the use of small radium emanation tubes for medical purposes originated in Dublin will be seriously questioned. This idea has been adopted at various radium centres and the technique developed in such a way that the emanation may be concentrated in minute glass capillaries measuring no more than about 3 mm. long and 0.5 mm. diameter. Dr. Failla, of the Memorial Hospital in New York, has devised a piece of apparatus for this purpose which is little short of a triumph of experimental skill. By the use of emanation in this way, the risk of loss of radium is probably minimised, although accidents have happened in the past to glass vessels containing radium in solution. A further apparent advantage is that tubes of any desired strength or dimensions may be filled to meet clinical requirements. This is not possible if the available supply of radium is sealed into a number of platinum tubes arbitrarily graded in strength.

A few disadvantages of the method may be mentioned. The cost of the apparatus, its upkeep, and the personnel for its efficient working is considerable; the emanation tubes slowly decline in strength, and this makes the calculation of the dose a little tiresome. Dr. Regaud has thought it more useful to measure the quantity which he calls "l'émanation détruite" instead of the average strength of the emanation, though the latter appears more directly useful.

I think that these obvious pros and cons are readily granted by those who have practical experience in the subject. There are, however, some debatable points which it might be useful to mention briefly.

(a) *The Uniform Irradiation of a Tumour by the Surgical Introduction of Radio-active Tubes.*—I presuppose that it is desired to give each part the same dose, presumably the lethal dose. The question is, What are the best sources to use for this purpose? We must avoid point sources and sources giving easily absorbed radiation; here are two objections to the emanation capillaries. If platinum tubes of thickness 0.5 mm. are used, the bulk of the radiation is of a very penetrating character, and some approach to uniformity of irradiation is got by using a number of them suitably placed; purely geometrical requirements must, however, give way to what is possible surgically. The lack of uniformity of irradiation can be compensated to some extent by the external application of gamma rays, but it appears hardly possible to avoid the overdosing of the tissues in those zones which are in immediate contact with the tubes.

(b) *The Avoidance of Tissue Reactions of an Undesirable Nature.*—Dominici held that it was a good thing to avoid the actual destruction of the tissues irradiated, and he aimed at producing a reaction in the normal tissues of the host which would bring about the desired results; he was a strong advocate of gamma radiation. Lately Dr. Laborde has maintained that the rather violent changes induced in the tissues by the beta rays from the emanation capillaries is an argument against their use.

(c) *The Advantages of Using Sources of Constant Intensity.*—Advances in radium therapy depend not only upon a recognition of the forms of disease for which it is a suitable agent, but upon the quantitative way in which it is applied; the quantitative technique is perhaps just as difficult as that involved in the deep X ray therapy of the present day, and it might serve a useful purpose in radium therapy if there were some agreement among those interested in the surgical use of radium to use tubes graded in size and content, according to a definite scale. The quantities at different centres in ordinary use range roughly from 1 to 100 mg. of radium bromide, and if arbitrary quantities, say, 1, 10, 25, 50, and 100 mgm. were decided upon and placed in tubes appropriate in size to these contents, comparisons between the results of treatment at different centres would become simplified to some extent.

In the radium clinical investigation which is at present being conducted at different centres in Great Britain and Ireland under the ægis of the Medical Research Council the attempt has been made to do this.

I am, Sir, yours faithfully,

SIDNEY RUSS.

The Middlesex Hospital, London, April 9th, 1923.

ALCOHOL AND INSANITY.

To the Editor of THE LANCET.

SIR,—Dr. Sullivan refuses to differentiate between a concrete instance and an abstract principle. It is not of the smallest importance from the present point of view whether or not mental stress is a cause of insanity. Dr. Sullivan will not, I suppose, deny that there is *some* cause of insanity. Let us call it "x" and I will grant him that mental stress has no causal connexion with insanity. Then "x" stands for any and every cause of insanity except alcoholism, and the point at issue remains unchanged. In order to prove that alcoholism is not a cause of insanity, it is necessary to show (in addition to the facts originally adduced in your leading article) that "x" has not increased in proportion to the diminution in alcoholism. This neither Dr. Sullivan nor your leading article has made any attempt to do.

I am, Sir, yours faithfully,

Wimpole-street, W., April 9th.

STANLEY WYARD.

INSANITY AND THE CRIMINAL LAW.

To the Editor of THE LANCET.

SIR,—In your admirable leading article on Insanity and the Criminal Law in THE LANCET of April 7th, you state that "a committee of the Medico-Psychological Association, which considered this question exhaustively in 1896, failed to find, within the period covered by its inquiry, any instance of miscarriage of justice." As I opened the discussion on this subject in 1894 at the annual meeting of the British Medical Association at Bristol, at which for the first time in the annals of the B.M.A. barristers and lawyers were invited to attend and join in the debate, and as the said committee was appointed on a resolution proposed by myself and seconded by the late Dr. Charles Mercier, may I be allowed to interpose?

The report you mention was strongly opposed by a minority, and the result of this opposition was, that a resolution was carried by a large majority—that the report be laid on the table. So that this report was never accepted by the Medico-Psychological Association. My one great objection to the M'Naughton ruling—apart from its unscientific determination—is that the evidence which experts are *allowed by some judges* to give in the criminal court is not sufficient to enable the jury to bring in a verdict of "Guilty, but insane." Yet in many cases a written opinion by the same or some other expert, who is not cross-examined after an examination of the condemned prisoner, is sufficient to save him or her from the scaffold. Justice which is now done the prisoner in the condemned cell was withheld from him in the criminal court. This is, to my mind, palpably wrong and should in some way be righted.

The question of diminished responsibility is a very important one and this question would be easy of solution if we had—like other countries—degrees of the crime of murder.

I am, Sir, yours faithfully,

April 6th, 1923.

LIONEL A. WEATHERLY, M.D.

SYPHILIS OF THE MEDIASTINUM.

To the Editor of THE LANCET.

SIR,—Whilst duly appreciating Dr. F. G. Chandler's friendly criticism of my case, I feel bound to confess that some of the points he has raised as being typical of mediastinal sarcoma are not in keeping with the teaching of medical writers. More especially do I refer to the statement that in mediastinal sarcoma there is "no displacement of viscera." Practically all the authorities to whom I have gone for reference state that displacement is an early symptom and may assume very large proportions. With regard to the title of my paper, I should have used the terms "A Case of Aneurysm of the Aortic Arch in a Girl," had I not been impressed by the unlikelihood of such a condition in a young female. As it was, X ray examination almost suggested the presence of an aneurysmal dilatation. I also regret that a post-mortem examination could not be obtained.

I am, Sir, yours faithfully,

Doncaster, March 26th, 1923.

HAROLD F. RENTON.

THE DISPENSING OF PRESCRIPTIONS.

To the Editor of THE LANCET.

SIR,—I have been interested in the subject of accuracy in dispensing referred to in letters recently appearing in THE LANCET and wish to add my testimony in support of the opinions expressed by the writers as to the necessity of this matter receiving more general attention under the Food and Drugs Acts. One of your correspondents rightly says "how many mistakes may be made through faulty drugs?" and pleads for a set of regulations similar to those which control the dairy. I think the powers we

already possess are quite sufficient if they are properly used. An Islington paper, the *Daily Gazette*, of March 24th, records a successful prosecution for the sale of a certain compound drug which was not composed of the ingredients in accordance with the demands of the purchaser, inasmuch as the said compound contained potassium bromide to the extent of 20.3 per cent. in excess of the amount prescribed, and spir. ammon. aromat. to the extent of 28.6 per cent. in excess of the amount prescribed.

When in the Isle of Wight in the year 1913, a sample prescription was made up by six panel chemists, the sample being taken with a view to ascertaining how they would be made up, particularly as regards quantities of materials composing the mixture. The prescription was a very simple one, containing nothing but potassium iodide, glycerine, and water. The iodide cost then about 13s. 6d. a pound, and the glycerine about 1s. 3d. a pound. The results of the analyses showed that the drugs were genuine, but that the quantities supplied varied very considerably.

Sample.	Short in pot. iod. (per cent.).	Short in glycerine (per cent.).
(a) was	3.75	10.96
(b) was	9.25	6.03
(c) was	16.5	27.3
(d) was	11.75	12.92
(e) was	6.0	2.7
(f) was	3.5 per cent. in excess of pot. iod. and 29.5 per cent. in excess in glycerine.	

Such results show the need of making frequent investigation into the accuracy of the dispensing of drugs by chemists.

I am, Sir, yours faithfully,

J. P. WALKER,

April 5th, 1923.

County Medical Officer, Isle of Ely.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR,—Having read in your columns the opinions of several of my colleagues concerning Mr. Henry Spahlinger's antituberculous vaccines and sera, I beg to inform you that I have applied this method since 1915 to more than 250 patients. My reasons for not having published sooner the remarkable results obtained are as follows.

These specific remedies are extremely delicate and difficult to produce. They necessitate the simultaneous manufacture of a series of partial products of which the combination produces the necessary polyvalence in order to obtain a cure for tuberculosis. The supply of these sera and vaccines has often, partially or totally, failed by reasons of the war and financial difficulties. Had the public been aware of the favourable results obtained by the treatment, the visits and demand for the remedy would have rendered Mr. Spahlinger's work more difficult and delayed the manufacture. The antitoxic action of the sera and their polyvalence not only arrest tuberculosis in its acute forms, but also render possible the application of this treatment with success in the most advanced phases of the disease, and in cases in which any therapeutic intervention by methods previously known would have appeared hopeless. The curative effect of the vaccines, even of partial vaccines, in chronic forms of tuberculosis has shown itself extremely reliable.

Since, for want of funds, the sera and vaccines can no longer be prepared, and, owing to general indifference, there is a prospect of closing the laboratory (the continued activity of which involves the recovery and lives of a multitude of sufferers) I consider it now to be my duty to make known the results obtained by this method.

I am, Sir, yours faithfully,

DR. TH. STEPHANI.

Montana, Switzerland, April 6th, 1923.

THE OPERATIVE TREATMENT OF SEPTIC MENINGITIS.

To the Editor of THE LANCET.

SIR,—The correspondence which has taken place upon the above subject, although it may not have cleared up the more or less academic point at issue, has at all events focused attention upon the all-important necessity of early diagnosis and early surgical interference.

How far one clinician will rely upon early biochemical evidences of disease and how long another will await the advent of definite objective indications will, no doubt, depend largely upon what his previous teaching has been. Nothing which has been written in this correspondence has altered my opinion that there is in meningitis a stage when the exudate is "serous" and another when it is "purulent"; that the one is the forerunner of the other, the former condition being amenable to early operative treatment, the latter, except on rare occasions, being followed by a fatal result.

I have had occasion to criticise Prof. Holgar Mygind's statistics on a previous occasion and do not propose to discuss them again. I would suggest, however, that those in charge of aural clinics—for I am referring to otitic meningitis—tabulate all the cases passing through their hands during a period of 12 months, and then publish the chemical changes found in the cerebro-spinal fluid, the cellular content, the bacteriological findings, and the final results. If they adduce evidence contrary to my experience I shall ask them to allow me to sit at their feet and learn.

I am, Sir, yours faithfully,

Manchester, April 9th, 1923.

WILLIAM MILLIGAN.

ALLOCATION OF PANEL PATIENTS.

To the Editor of THE LANCET.

SIR,—The injustice of not allocating insured patients, who will not take the trouble to choose a doctor, is shown by the following. In the town where I practise there are 22,641 patients on the panel, 2888 of these have chosen no doctor, and the grant for them (some £1400 per annum) is divided among the insurance practitioners according to the numerical strength of their panels. In the town is a "Dr. A," with a panel of over 4000; he is allowed to have an arrangement with "Dr. B" (although not his assistant or even his partner) to cover this excess, and the two are allowed to have a total list of 4500; they actually have 4700 odd as a total. These two practitioners will get, roughly, one-fifth of the £1400 per annum (£280) above-mentioned as their share, in addition to the grant for their actual lists. If these 2888 patients were allocated "Drs. A and B" could not possibly receive any of them, as their lists are already in excess.

I am, Sir, yours faithfully,

April 9th, 1923.

PANEL PRACTITIONER.

ROYAL WEST SUSSEX HOSPITAL, CHICHESTER.—The excess of expenditure over income in 1922 was £564, compared with the deficit of £196 11s. 7d. during 1921. In their annual report the governors appeal to all newcomers in the district to support the hospital, and to all employed persons to join the employee's scheme and to give a weekly contribution of 1d. or 2d. The scheme introduced last year for private paying patients is said to be working satisfactorily. The hospital has been adopted by the General Nursing Council of England and Wales as an approved training school for nurses, and an extensive new curriculum for student nurses has been instituted. The private nursing branch has been discontinued owing to the small number of applications received, private nurses in the district being well supplied from other sources. Sanction was given to liquidate the deficit from the Trustees' Fund which, it was stated, now stands at £16,759. A committee has been appointed to consider means of increasing the income. In-patients during the year numbered 954, against 928 during 1921; out-patients 1020, against 1088; X ray patients 815, against 497. The work of the X ray department had so increased that an X ray sister has been appointed.

Medical News.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following candidates successfully passed the examination held at the termination of the seventy-first session (January to March, 1923):—

*A. G. Harsant (Duncan medal). *R. Briercliffe, *C. E. Cook, *H. de Boer, *E. W. Adcock, C. H. Han, A. C. Rebello, R. H. Simpson, H. C. Godding, C. de C. Martin, M. L. Dhawan, J. Wijeyeratne, F. S. T. Thomas, J. M. Ghosh, R. W. C. Kelly, W. J. Jameson, P. Walsh, S. A. Wilkinson, H. G. Stockley, A. H. Manfield, Miss N. R. Mucadam, E. V. Lupprian, K. S. Krikorian, R. Cross, A. C. Garewah, H. P. Hodge, E. D. Lindow, and V. Mathew Matthews.

* With distinction.

UNIVERSITY OF DURHAM.—A new degree of Doctor of Surgery (D.Ch.) has been instituted at this University. The degree will be granted to those who can offer evidence that after graduation they have complied with the following regulations:—

The candidate must be a registered medical practitioner, not less than 24 years of age.

He must devote three years, not necessarily consecutive, subsequently to obtaining a registrable qualification, to the study of surgery and ancillary subjects. One at least of the three years must be spent in the University.

The candidate must submit to the professor of surgery the course of study he proposes to follow, and this course must be approved by the Board of the Faculty of Medicine.

One year shall be devoted mainly to work in the departments of anatomy, physiology, pathology, and bacteriology.

Six months must be spent as resident surgeon in a recognised teaching hospital and six months in the study of surgery in a recognised medical centre.

Six months must be spent in surgical study abroad.

The examination shall consist of an essay on some surgical subject chosen by the candidate and approved by the professor of surgery, and a clinical, practical, and oral examination in the field of general surgery, including anatomy, physiology, pathology and bacteriology, operative surgery, bandaging, instruments, &c. Further particulars may be obtained from the Registrar at the University.

At the Convocation held on March 29th the following degrees were conferred:—

M.D. for Practitioners of 15 Years' Standing.—William H. I. Bathurst, Walter G. Edwards, and William O'Sullivan.

M.B., B.S.—Frederick J. Armstrong, Sydney Basham, Thomas H. Blench, John C. Boyde, Edward C. Brewis, Cecil J. Cellan-Jones, William N. Douglas, Mary Douglass, Claude Fenwick, Clennell C. Fenwick, William Graham, Alec Hanson, Norman Harkness, Edward S. Kirkhouse, Ralph R. Scott, Ralph F. Tredre, Henry F. Wattsford, and Edward A. Welsh.

L.D.S.—Thomas W. Hogg, Julius H. Joseph, Alfred E. Pattie, Eric B. Phillips, John L. Reid, and Allen McLean Wilson.

UNIVERSITY OF DUBLIN, SCHOOL OF PHYSIC, TRINITY COLLEGE.—At examinations recently held the following candidates were successful:—

FINAL MEDICAL EXAMINATION.

Part I., *Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology and Bacteriology.*—

*Gordon Purdy, *Wilfred H. Anderson, *James W. Wallace, *George A. Cowan, Patrick K. Dixon, Douglas L. Hemmingway, Rudolf Schaffer, Cornelius J. N. Loubser, John A. MacDonnell, John Crawford, Agnes L. Kelly, Joseph Morris, Godfrey W. Garde, Anthony B. Monks, Ralph A. Webner, George R. L. Jordan, Howard St. George McKenny, Jerreth Horwich, George G. McFarland, Morris Sless, William D. Speedy, Robert G. F. Thompson, John G. Maguire, Pieter Coetzee du Plessis, John E. Beatty, James Craig, John L. Livingston, Herbert Birney, James L. Marshall, Alexander Hawthorne, Paul Douglas Piel, and Isobel G. Smith.

Part II., *Medicine.*—William S. Dixon, Reginald R. J. Brandt, Joseph A. Gaynor, Agnes McLaughlin, Samuel M. Geffen, Robert T. Jackson, Alice M. A. Downing, Wilfrid E. C. Wynne, Henry O'Donnell Burke-Gaffney, George F. T. Saunders, James A. MacDonald, Henry J. L. Murphy, Jack M. Gordon, Ely G. Copeland, Dorothy C. H. Dornan, Herbert Kohlberg, Robert S. McElroy, Bernard Morris, William E. Callanan, Margaret L. Cowan, Norah M. Gilchrist, Maria E. Wagener, Max Wulfschön, Eileen A. Boyd, Samuel W. Jamison, Hyman S. Roseman, Johannes H. Stals, and Joseph C. Byrne.

Surgery.—*Jan Hendrik Rauch, *Agnes McLaughlin, Richard R. D. Crawford, Robert H. Micks, Victor O. McCormick, Harold Renton, Cecil A. V. Ovendale, David S. Spence, Reuben Lipschitz, William T. Hogan, Henry M. Martin, John C. St. George Earl, Joseph E. Deane, Jan Hendrik Hodgman, Nicolaas Jan Valkenburg van Druten, Alexander Bernstein, Mossy Jaffe, William L. Duncan, Thomas G. Wilson, Ely G. Copeland, John S. Glasgow, Ernest M. Landau, James V. Williams, Albert V. Wood, Margaret L. Cowan, John H. J. Stuart, Etienne R. Hafner, Frederick W. G. Smith, Hugh R. Brady, Harold Lewin, Jacobus F. van Staden, and John D. Watson.

Midwifery.—John S. Glasgow, Joseph E. Eliason, Lazarus Heyman, William L. Duncan, John Kalmanson, Eric C.

Downer, Samuel M. Geffen, Kathleen E. Hill, Max Wulfsohn, John McClelland, Richard C. L. Griffiths, Herbert Kohlberg, Israel Marin, Albert E. O'Donnell, Frederick W. G. Smith, Norman E. H. P. Williams, Louis MacSherry Bell, Frederick T. Easby, Henry O'Donnell, Burke-Gaffney, James A. MacDonald, Alexander Hawthorne, Nicolaas Jan Valkenburg van Druten, Tobias Freedman, Robert A. O'Meara, Johannes H. Stals, Pieter Coetzee du Plessis, Charles W. J. Ingham, Solomon Narunsky, Harry Ruben, Joseph C. Byrne, Morris Cohen, Louis Harris, William T. Hogan, Gladys Weatherill, Martha Reid, Frederick G. Brown, Sylvia B. Wigoder, Charles R. Hillis, Albert V. Wood, Robert S. McElroy, Julius Kruger, and Cecil J. McQuillan.

* Passed on high marks.

DIPLOMA IN PUBLIC HEALTH.

Part I.—Leon O. Vercueil, Ruth F. Flavelle, Mary M. O'Leary, Samuel G. Weldon, and Patrick M. J. Bobbett.

Part II.—Leon O. Vercueil, Ruth F. Flavelle, Samuel G. Weldon, and Mary M. O'Leary.

NAVAL MEDICAL COMPASSIONATE FUND.—The annual meeting of the subscribers to this Fund will be held at the Medical Department of the Navy, 68, Victoria-street, London, S.W., on Tuesday, April 17th, at 11.30 A.M., for the purpose of electing six directors.

CONGRESS OF OBSTETRICS AND GYNÆCOLOGY.—An alteration is announced in the programme of this congress which will be held in Edinburgh on April 19th and 20th. It has been found impossible to issue any formal report as a basis for the main discussion on intrinsic dysmenorrhœa and its treatment. The subject will therefore be introduced by Prof. Blair Bell, Liverpool, while Dr. T. Watts Eden, Prof. Ewen Maclean, and Dr. R. W. Johnstone will follow with brief papers on special aspects of the question.

SOCIETY OF MEDICAL OFFICERS OF HEALTH: FEVER HOSPITAL MEDICAL SERVICE GROUP.—A meeting of this group will be held at 1, Upper Montague-street, Russell-square, London, W.C., on Friday, April 27th, at 3.45 P.M. A paper will be read by Dr. W. J. J. Stewart on the Failure of the Isolation Hospital to Reduce the Incidence of Scarlet Fever; a Possible Explanation and Remedy, with a note on Diagnosis. Dr. M. O. Howell will communicate a report on a case.

ROYAL INSTITUTE OF PUBLIC HEALTH.—The next Congress of the Institute will be held at Scarborough from Wednesday, May 16th, to Monday, May 21st inclusive, under the presidency of Lord Riddell. The President will be supported by an imposing list of vice-presidents, including the Presidents of the English Royal Colleges, the director of the Royal Naval Medical Department, the chairman of the Metropolitan Asylums Board, and the mayors of a large number of metropolitan boroughs and provincial cities. The Mayor of Scarborough will preside over a general committee, composed of representative citizens of the locality. The proceedings will be divided into five sections—namely: (1) State Medicine and Municipal Hygiene; (2) Naval, Military, Air, and Tropical Diseases; (3) Bacteriology and Biochemistry; (4) Women and Public Health; and (5) Industrial Hygiene, and to the proceedings of these sections important communications have already been promised. All information with regard to hotel and travelling arrangements and railway tickets should be made to Dr. T. N. Kelynaek at the office of the Institute, 37, Russell-square, London, W.C.

ROYAL SANITARY INSTITUTE.—A sessional meeting will be held jointly with the Home Counties Branch of the Society of Medical Officers of Health, on April 27th, in the Guildhall, Guildford, when a discussion on Things That Matter in Public Health will be opened by Sir Arthur Newsholme, followed by Sir Arthur Spurgeon, Dr. Andrew Balfour, Alderman Shawcross, Dr. G. F. Buchan, Dr. R. J. Ewart, Dr. A. Greenwood, Dr. W. W. Jameson, Dr. D. C. Kirkhope, Dr. A. Lyndon, Dr. A. B. McMaster, Dr. T. S. McIntosh, Dr. W. A. Muir, Dr. R. D. Smedley, and Dr. J. Watt. The chair will be taken at 6 P.M. by Dr. Louis C. Parkes. Those proposing to attend should notify the hon. local secretary, Dr. J. Cates, 5, Grove-crescent, Kingston-on-Thames, not later than April 20th.

The annual congress will be held at Hull from July 30th to August 4th. The inaugural address will be read by the President of the congress, Mr. F. R. Ferens, high steward of Hull, on July 30th. A lecture on a Pure Water-supply will be delivered by Sir Alexander Houston on July 31st. A Health Exhibition, illustrating municipal sanitation and domestic health and comfort, will be arranged, and visits to places of sanitary interest. The Council invite papers on health and sanitary science. Authors should forward the manuscript, which should not exceed 2000 words, as early as possible, in any case not later than June 25th, to the Secretary, the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W. 1, from whom further particulars may be obtained. The hon. local secretaries are Mr. H. A. Learoyd and Dr. J. Wright Mason.

SOCIETY FOR CONSTRUCTIVE BIRTH CONTROL AND RACIAL PROGRESS.—A meeting will be held on April 19th, at 8 P.M., at Essex Hall, Strand, London, W.C., when Mr. Charles E. Pell will give a lecture entitled "Is the Fall in the Birth-rate a Natural Law?" to be followed by a discussion. Those interested are asked to apply to the hon. sec. of the society, 7, John-street, Adelphi, London, W.C. 2.

No. 55 GENERAL HOSPITAL.—The annual reunion dinner will be held at the Trocadero Restaurant on Saturday, May 12th, at 7 for 7.30 P.M. The matron and nurses are holding a reunion tea at the United Services Club, 34, Cavendish-square, at 4-6 P.M. on the same day, to which all officers are invited. Those intending to be present are asked to notify Dr. H. B. Roderick, 17, Trumpington-street, Cambridge, as soon as possible.

LADIES' MEDICAL GOLFING SOCIETY.—The spring meeting was held at West Hill golf course on April 6th. The Canny Ryall Challenge Cup was won by Mrs. Max Page with a score of 92-10=82. Miss M. Gourlay won the scratch prize with a score of 88. Miss E. Leitch won the senior handicap with a score of 89-6=83, and with Mrs. Lamplough the foursomes against bogey (2 down). Miss McElroy (18) won the junior handicap after a tie with Mrs. Sherwill Dawe (20), with a score of 88.

ST. BARTHOLOMEW'S HOSPITAL WAR MEMORIAL FUND.—At a recent meeting of the Council of the Medical College it was decided to open a subscription list towards the memorial for St. Bartholomew's men who lost their lives during the European War. The exact form which the memorial should take has not yet been decided upon, but it would in any case include a tablet on which the names would be recorded. A provisional list has been drawn up and circulated in order that any mistakes or omissions may be rectified. The preliminary list of subscriptions includes a sum of £1000 from the medical staff of the hospital. Any who wish to subscribe are asked to send their contribution to Mr. W. Girling Ball, hon. secretary, 77, Wimpole-street, London, W. 1.

LANDOUZY MEMORIAL MUSEUM.—On March 22nd the Landouzy Memorial Museum was officially opened, the ceremony taking place in the council room of the Faculté de Médecine. Most of the professors of the faculty were present, and many offered grateful tribute to the late doyen of the French medical profession. His successor, Prof. G. H. Roger, referred to the time, now happily remote, when Landouzy's views on the prevalence of tuberculosis were the subject of incredulous scoffing. His opinion that almost every obscure case of pleurisy was due to tuberculosis gave him the reputation for seeing tuberculosis everywhere. To which accusation he would retort: "But it is everywhere." Other speakers dealt with other aspects of Landouzy's career—his gift for organisation, his clinical acumen, his patient kindness. But always, or nearly always, they came back to his work on tuberculosis, and his labours on behalf of the "tuberculosis casualties" of the war were referred to more than once. The medal struck in commemoration of Landouzy bears the words: Quid medicus possit vita verboque docebat.

THE DISPENSING OF PRESCRIPTIONS IN SALFORD.—A report issued by Mr. G. D. Elsdon, borough analyst of Salford, records the success achieved in Salford by the superintendence of dispensing under the Insurance Act. For many years past mixtures based upon prescriptions written on the private notepaper of medical practitioners have been analysed in Salford. In 1916 a clause was inserted in the terms of service under the Insurance Act for persons supplying drugs and appliances, which stated that:

"All drugs and appliances shall be supplied to the person presenting such order as aforesaid free of charge to that person. Provided; nevertheless, that the pharmacist shall sell to any one of the persons mentioned in Section 13 of the Sale of Food and Drugs Act, 1875, or to any person authorised by such person at the price usually charged to private customers any drug or medicine prescribed or specified on the appropriate prescription form provided by the Committee for the use of insured persons and signed by an insurance practitioner."

In 1918 arrangements between the Salford Insurance Committee, the Salford Health Committee, and the Pharmaceutical Association were made for the taking of samples on Insurance Act prescription forms. It is important to decide what degree of accuracy it is reasonable to expect, and in Salford it has been mutually agreed that the strength of prescriptions should not differ by more than 10 per cent. from the truth, except in such cases as sodium bicarbonate, when 15 per cent., or thereabouts, was accepted. In the case of potent drugs, however, it was insisted that a 10 per cent. error was too great. The public analyst reports to the Insurance Committee as well as to the Health Committee, so that either or both may institute legal proceedings should it deem fit.

THE address of the Medical Defence Union has been changed to 49, Bedford-square, London, W.C. 1.

Sir David Wallace, K.B.E., C.M.G., F.R.C.S., has been appointed a deputy lieutenant for the county of the city of Edinburgh.

PRECAUTIONS AGAINST SMALL-POX AT NELSON.—In consequence of the outbreak of small-pox at Nelson—up to the end of last week 49 cases have been reported—the managers of public entertainments and the local cinema houses have agreed to close their establishments. The Sunday schools also will be closed.

MANCHESTER HOSPITALS.—The Manchester and Salford Hospital Saturday and Convalescent Homes Fund and district joint committees last year collected £15,882, an increase of £1000 on the previous year. The increase was due to the penny-a-week scheme, which the chairman described as the solid rock foundation of the Hospital Saturday Fund. Since its institution in 1907 the Fund has provided £83,600 for the hospitals.

DONATIONS AND BEQUESTS.—The late Mrs. Frances Brown, of Clapton-square, Clapton, N.E., has left by will, among other bequests, £5000 to King Edward's Hospital Fund for London, for the use of such London hospitals as may be most in need of it; £5000 to the London Hospital; £5000 to St. Bartholomew's Hospital; £2000 to Addenbrooke's Hospital, Cambridge; £1000 to Dr. Barnardo's Homes; £1000 to St. Dunstan's Hostel for Blinded Soldiers.

THE LATE DR. DANIEL BALDING.—Daniel Barley Balding, who died on April 8th at Royston, Herts, at the age of 92 years, studied medicine at the Middlesex Hospital, qualifying L.S.A. in 1852 and F.R.C.S. Eng., 1858. He became resident medical officer at his hospital and maintained throughout life a keen interest in its doings, contributing notes on the Hospital Reports to our columns. He was on the Commission of Peace for the counties of Cambs and Herts, and had acted as coroner for Hertfordshire for 40 years.

CITY OF LONDON MENTAL HOSPITAL.—In the annual report for 1922 of this hospital, which is situated at Stone, near Dartford, it is recommended that two clauses relating to the hospital should be inserted in the next General Powers Bill of the Corporation of London. The first of these is to authorise the use of the term "mental hospital" in describing the institution for legal and official purposes; the visiting committee "believe that they are only voicing a general feeling throughout the country that the description 'asylum' should be dropped in connexion with institutions for the mentally afflicted." The second is to empower the institution to receive voluntary boarders; many applications for the admission of voluntary boarders are received, and have at present to be refused. A noteworthy feature of the report concerns the practice of allowing unusually large numbers of patients out on trial and on parole. A considerable amount of anxiety and trouble is thus involved, but the pleasure and gain to the patients are such that 86 have been allowed out on parole this year, and a number of others have been given leave of absence, not only to test fitness for discharge, but in some cases to give them the benefit of a change during remissions in their illness.

A TOUR OF THE ITALIAN SPAS.—An opportunity will be afforded at the end of next month for a group of English medical men to visit a selection of the Italian spas. The departure from London will take place on May 29th, and the arrangements on the British side are in the hands of Major W. Stormont, Italian State Railways and State Tourist Department, 12, Waterloo-place, London, S.W., from whom all details can be obtained. The tour, which will last a fortnight, is being organised in connexion with the Italian medical authorities; it will start at Acqui, just north of Genoa, and will include San Pellegrino, Sirmione, Levico, Roncegno, Salsomaggiore, Montecatini, Fiuggi, and Agnano, next to Naples. Incidentally the tour will take the travellers through Milan, Florence, and Rome on their way south. Owing to the generosity of those concerned the train and hotel accommodation from beginning to end will cost only about 12 guineas, to which sum will have to be added another 12 guineas, or so, for the journey between London and the starting-point. The Italian spas are not at all well known to English medical men, and the opportunity is one therefore that should be taken by those particularly interested in balneological treatment. The most lovely season of the year has been selected for the tour, and arrangements have been made for Italian medical men with a knowledge of English to accompany the travellers.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Defeat of the Government.

THE Government suffered defeat in the House of Commons on Tuesday evening, April 10th, after a discussion on the motion that "the Speaker do now leave the Chair" on the House going into Committee of Supply on the Civil Service Estimates.

HOUSE OF COMMONS.

MONDAY, APRIL 9TH.

Dangerous Drugs and Poisons Bill.

On the motion for the third reading of the Dangerous Drugs and Poisons (Amendment) Bill,

Mr. SIDNEY WEBB said he had been asked by a number of medical practitioners to bring several points to the notice of the Home Secretary in connexion with the measure. There had been considerable advances made in the knowledge concerning drugs and poisons since the Poisons and Pharmacy Act, 1868, was passed. He suggested that it might be possible to draw up a revised schedule of these substances with the advice of the Royal Colleges of Physicians and Surgeons in the light of the latest chemical knowledge available. He also called attention to the powers taken under the Bill to deal with acts which might not be crimes under British law, but might be made punishable under the law of other countries. He thought that this was stretching our system of jurisprudence rather far. While he did not suggest that anything dreadful was going to happen under this provision it seemed to him to be opening the door rather wide.

Sir SYDNEY RUSSELL-WELLS said that he was convinced that the provision with regard to offences under the law of foreign countries was absolutely necessary if conventions were to be entered into with other nations for the suppression of what was undoubtedly a pernicious practice. He thanked the Home Secretary on behalf of the medical members of the House for the way in which he had treated the representations they had made to him on this measure. He thought that Mr. Bridgeman had realised they were anxious to help in carrying out the objects of the Bill. He thanked the right hon. gentleman for removing the provision which prevented medical men from prescribing these drugs for themselves. They had been able to convince the Home Secretary that the provision would occasion inconvenience and hardship and all sorts of anomalies, and would not be likely to effect the object in view.

Mr. BRIDGEMAN (Home Secretary) said that he was taking steps to withdraw the regulations referred to by the hon. Member. As to the question of a revised schedule raised by Mr. Sidney Webb, the schedule made up under Section 2 of the original Act was brought down to 1908. On the advice of the Pharmaceutical Society it would be possible to add other drugs to the schedule if it was found necessary. In reply to Mr. Webb's point about laws passed in other countries, Mr. Bridgeman said that the agreement signed at The Hague on Jan. 23rd, 1912, should do away with any apprehension that foreign countries might pass some law which we should be obliged to observe.

Mr. G. C. CLAYTON asked the Home Secretary to make the same concessions to licensed wholesale druggists as he had made to the medical profession and the Pharmaceutical Society. At present they were liable to the same penalty as illicit drug dealers.

Mr. BRIDGEMAN said that that point was raised in Committee, and on that occasion he gave reasons why he could not agree to reduce the penalty for a breach of the licence far below what he thought was necessary.

Lieut.-Colonel FREMANTLE said that this was not "stunt" legislation; he only wished it were. But they were faced with a very serious danger. The drug traffic was a subtle, insidious influence which was sapping the vitality of individuals met with in ordinary life. The long-standing trouble between the medical profession and the makers of patent medicines was removed by the provisions of this Bill. The claim of the profession that the ingredients of patent medicines should always be given was opposed by the makers on the ground that it would not be in the interests of British trade to reveal trade secrets. Both claims were satisfied, and the public interest met by the provision that in patent medicines containing a dangerous drug the proportion of that drug must be stated on the bottle.

Dr. CHAPPLE said that the Bill dealt with only one-tenth of the evils of the drug traffic. He urged the Government to complete their work by bringing in legislation on the basis of the report of the Committee on Patent Medicines, which was presented in 1914.

The Bill was read a third time.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, April 17th.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for election to the Fellowship.

ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)

Cases:

The following will be shown by:—

Mr. C. Max Page: Cases of Muscle Sliding Operation on Forearm.

Mr. P. Bernard Roth: (1) Case of Renal Dwarfism after Operation for Genu Valgum. (2) Case of Ocular Torticollis.

Other cases will be shown.

Wednesday, April 18th.

HISTORY OF MEDICINE: at 5 P.M.

Papers:

Dr. A. T. Davies: Thomas Davies, M.D., and His Work.

Mr. R. Campbell Thompson: Assyrian Medical Texts in the British Museum.

Thursday, April 19th.

DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)

Cases will be shown.

Friday, April 20th.

OTOLOGY: at 5 P.M. (Cases at 4.45 P.M.)

Communication:

Mr. E. D. Davis: The Morbid Anatomy and Drainage of Otitic Meningitis (with specimens).

Cases:

Sir James Dundas-Grant will show cases of Deafness with History of Injury.

Cases will be shown by Dr. Dan McKenzie and others.

ELECTRO-THERAPEUTICS: at 8.30 P.M.

Short Papers:

Dr. Salmond: A Case Illustrating the Use of Pneumopericardium.

Mr. Hart and Mr. W. Whately Smith: A New Apparatus for Measuring Sensori-motor Reaction Times.

Other papers will be read.

ANÆSTHETICS: at 8.30 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

To be immediately followed by an ordinary meeting at which Dr. J. H. Chaldecott will open a discussion on Coroners' Inquests: The Classification of Anæsthetic Deaths as Violent or Unnatural. Members of the Coroners' Society and the Medico-Legal Society have been invited to attend and take part in the discussion.

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester-square, W.C.

TUESDAY, April 17th.—4.30 P.M., Specimens and Cases. 5 P.M., Dr. R. Prosser White: Fur Dermatitis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.

MONDAY, April 16th.—5 P.M., Prof. Shattock: Specimens Illustrating Repairs of Fractures.

FRIDAY, 5 P.M., Sir Arthur Keith: The Shape and Relationships of the Stomach.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, April 16th.—10 A.M., Mr. MacDonald: Genito-Urinary Dept. 3 P.M., Mr. Simmonds: Surgical Out-patients. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Mr. Steadman: Dental Dept. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Banks Davis: Nose, Throat and Ear.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 2.30 P.M., Mr. Donald Armour: Visit to Surgical Wards. 3 P.M., Dr. Pernet: Skin Dept.

THURSDAY.—2 P.M., Mr. Bishop Harman: Eye Dept. 2 P.M., Mr. MacDonald: Genito-Urinary Dept. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—10 A.M., Dr. Drummond Robinson: Gynaecological Operations. 12 noon, Dr. Flett: Radiology. 3 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10.30 P.M., Mr. Maingot: Surgical Pathology.

Daily 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M., In-patients and Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

(Demonstration of Clinical Cases at 3.30 P.M.)

MONDAY, April 16th.—Medical: Dr. J. Browning Alexander.

TUESDAY.—Surgical (3 P.M.): Mr. Howell Evans.

WEDNESDAY.—Eye Cases: Mr. Norman B. B. Fleming.

THURSDAY.—Surgical: Mr. H. W. Carson.

FRIDAY.—Diseases of Children: Dr. C. E. Sundell.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, April 19th.—5 P.M., Mr. L. Phillips: The Scope of Cesarean Section.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).

THURSDAY, April 19th.—3.30 P.M., Mr. E. R. Chambers: Common Forms of Conjunctivitis.

FRIDAY (at Dorchester).—Dr. Hadfield: Diagnostic Value of Cerebro-spinal Fluid Examinations.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, April 17th.—4.15 P.M., Dr. J. M. W. Morison: Radiography of the Chest and its Limitations.

FRIDAY.—4.15 P.M., Mr. W. R. Douglas and Dr. J. M. W. Morison: The Diagnosis and Surgical Treatment of Lesions of the Large Intestine.

SALFORD ROYAL HOSPITAL.

THURSDAY, April 19th.—4.30 P.M., Mr. A. Smalley: Emergencies of the Ear, Nose and Throat.

Appointments.

BARRON, H. THOMPSON, M.D. Lond., M.R.C.S., L.R.C.P., has been appointed Hon. Physician in charge of the Skin Department of the Royal Waterloo Hospital for Children and Women.

ROWAN, H., M.B., B.S. Lond., Registrar to the Kensington, Fulham, and Chelsea General Hospital, S.W.

Manchester Royal Infirmary: MITCHELL, W., M.B., Ch.B. Manch., and SMITH, E. P., M.B., Ch.B. Manch., Clinical Assistants.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—H.S. and Asst. H.S. £175 and £130 respectively.

Birmingham and Midland Homœopathic Hospital and Dispensary.—Res. H.S. £175.

Bradford Royal Infirmary.—H.S. £150.

Brentwood Mental Hospital, Brentwood, Essex.—Jun. Asst. M.O. £510.

Brighton, Royal Sussex County Hospital.—H.S. £150.

Bristol General Hospital.—Hon. Asst. P.

Cancer Hospital, Fulham-road, S.W.—H.S. £100.

Carlisle Union, Fuschill Institution.—M.O. £250.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £125.

Colchester, Essex County Hospital.—H.P. £200.

Delamere Forest, Cheshire, Crossley Sanatorium.—Asst. M.O. £250.

Derby Isolation Hospital and Sanatorium.—R.M.O. £400.

Dover, Royal Victoria Hospital.—H.S. £180.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.S. £125.

Female Lock Hospital, 283, Harrow-road, W.—Clin. Asst. £100.

Gloucestershire Royal Infirmary.—Hon. Radiologist.

Great Indian Peninsula Railway.—Dist. Surg. Rs. 700 a month.

Hôpital Français, 172, Shaftesbury-avenue, W.C.—Second Res. M.O. £100.

Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. £50.

Hospital for Sick Children, Gt. Ormond-street, W.C.—Clin. Asst. M.O. in Venereal Dept. £1 ls. per visit.

Kensington Dispensary and Children's Hospital.—R.M.O. £150.

London County Mental Hospital Service.—Seventh Asst. M.O. £440.

London Homœopathic Hospital, Great Ormond-street, W.C.—Third Anæsthetist. £50.

Maidstone, Kent County Ophthalmic Hospital.—Res. Surg. O. £750.

Manchester Royal Infirmary.—H.P.'s and H.S.'s. Each £100.

Manchester, St. Mary's Hospitals for Women and Children.—H.S. £50.

Metropolitan Hospital, Kingsland-road, E.—Cas. O. and Res. Anæsth. £120. Sen. H.P. and H.S. £100. Also Asst. H.P. and H.S.

National Hospital for Diseases of the Heart, Westmoreland-street, W.—Out-patient M.O. £125.

Norwich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £150.

Nottingham, Children's Hospital.—R.H.P. £150.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £125.

Rotherham Hospital.—Sen. H.S. £250.

Royal Free Hospital, Gray's Inn-road, W.C.—Gynaecological Reg. £250.

Stretford Urban District Council.—M.O.H., &c. £750.

University College Hospital, Gower-street, W.C.—Res. M.O. £150.

West London Hospital, Hammersmith-road, W.C.—Hon. Med. Radiologist.

Whittingham County Mental Hospital, nr. Preston, Lancs.—Pathologist and Asst. M.O. £440 17s.

Worcester County and City Mental Hospital, Powick, near Worcester.—Jun. A.M.O. £300.

York, North Riding Mental Hospital, Clifton.—Deputy Supt. £500.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments at Ryde, Isle of Wight, and at Ulverston, Lancaster.

Births, Marriages, and Deaths.

BIRTHS.

DALLIMORE.—On March 28th, at The Limes, Edgeley-road, Stockport, the wife of Dr. F. Dallimore, of a daughter.
 GOFFE.—On April 5th, at 10, High-street, Kingston-on-Thames, Edna M. Powell, M.B., B.S. Lond., D.P.H. Camb., the wife of E. G. Leopold Goffe, M.D., B.S. Lond., of a son (Michael).
 HAYNES.—On April 7th, at Brentwood, the wife of Lieut.-Colonel H. G. L. Haynes, R.A.M.C.(T.), of a son.
 McELLIGOTT.—On April 3rd, to Drs. Geraldine and E. T. McElligott, Eltham, S.E. 9—a daughter.
 MIDDLEMISS.—On March 31st, at Settle, Yorkshire, the wife of Dr. G. W. Middlemiss of a daughter.
 MILLIGAN.—On April 6th, at Woodlands-road, Ansdell, Lytham, Lancs, the wife of W. E. Milligan, M.B., B.S., of a daughter.

MARRIAGES.

BURRELL—RYAN.—On April 7th, at St. Mark's, Little Common, Sussex, Ellis Morgan Burrell, M.A., M.B., B.Ch. Cantab., of Knutsford, Cheshire, to Helen Madge, youngest daughter of Mr. John Ryan, O.B.E., and Mrs. Ryan, St. Thomas' mansions, S.E., and "Mascot," Cooden Beach.
 RAYNER—HARDING.—On April 4th, at St. James's Church, Myatt's Park, S.E., Howard Luscombe Rayner, M.B. Oxon., to Kathleen Doris, only child of Mr. and Mrs. H. J. C. Harding, of Calais-gate, Myatt's Park, S.E.
 REA—WADDELL.—On April 4th, at Shawlands U.F. Church, Glasgow, Robert Lindsay Rea, F.R.C.S., Harley-street, W., to Mary Eleanor, daughter of the late Mr. James Waddell, Glasgow.
 SHELSWELL—CRAMPTON.—On April 4th, at the Parish Church, Hampstead, Arthur Hugh Shelswell, M.R.C.S., L.R.C.P., to Eileen, only daughter of Mrs. Crampton, of Hampstead, and the late Dr. T. Hobbs Crampton.
 TAGGART—SPICKETT.—On April 7th, 1923, Hugh J. Taggart, B.A., M.B., B.Ch., D.O.M.S., of 34, Central-avenue, Hayes, Middlesex, to Frances M. Spickett, M.R.C.S., L.R.C.P., M.B., B.S., of the South-Western Hospital, Stockwell, London.

DEATHS.

MACLEAN.—On April 3rd, at Swindon House, Swindon, Wilts, after a short illness, John Campbell Maclean, M.B., C.M., in his 78th year.
 YEATS.—On April 4th, at Oakhurst, Romiley, Cheshire, William Yeats, M.D., M.B., C.M., &c. (late of Manchester), aged 74.
N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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THE PRINCIPLES AND PRACTICE OF HEALTH LEGISLATION.

Abridged from a Public Lecture delivered under the auspices of the Chadwick Trustees, in the Inner Temple Hall, on March 12th, 1923.

BY CHARLES PORTER, M.D., B.Sc., M.R.C.P. EDIN.,

OF THE MIDDLE TEMPLE, BARRISTER-AT-LAW: MEDICAL OFFICER OF HEALTH, METROPOLITAN BOROUGH OF ST. MARYLEBONE.

LOOKING at health legislation administratively it is possible to see it as something other than law pure and simple. Dealing with it we are in fact not dealing with *health law* but with the *laws of health*, which have as their sanction not the fines and imprisonment that the law talks of and the courts may impose, but injury to health, sickness, disease, and even death, penalties that the law does not mention, but that a court higher than the highest of our courts may exact.

The measures containing these rules are very numerous: not because the rules themselves are numerous, but because they have to be applied in a variety of ways to a number of different matters. The bulk of these measures are comparatively recent; few of them go back much beyond 1875—rather less than 50 years ago—and most of them had their origin in Acts of Parliament not yet 100 years old. This does not mean that nothing in the way of health legislation was thought of or promoted and passed before that time. Nor does it mean that hygiene is an entirely new subject and that the earlier doctors or governments had not thought of preventing disease or of laying down laws of health. All it does mean is that it was not considered possible to apply health rules for the benefit of a mass of individuals, since local government in the communities was not sufficiently organised and there was no one to see that the rules were adopted and applied.

Principle of a Central Organisation.

In this country the need for an organisation in connexion with the application of the laws of health and as a preliminary thereto, was one of the first things to be recognised when the health conscience awoke and what may be called the real era of health legislation began. This may be regarded as the main principle underlying the whole of our health legislation, and of its soundness there can be no question. That it was adopted and adhered to is, to my mind, one of the reasons why our health scheme is superior to that of any other nation in the world. Like so much that is good in the sphere of public health, we owe thanks for it to Chadwick, a social reformer, and to Sir John Simon, the first real practitioner of preventive medicine this country ever saw. These two were the architects, and to a large extent the builders, of the system now in operation.

Having recognised the first broad principle—viz., the necessity for setting up an organisation, and, more important still, having brought others to recognise it, how did Chadwick and those with him proceed to establish it? The recognition of other principles was involved, the chief of these being that the need for organisation would not be properly met unless such as was set up was in intimate contact with the place where the health legislation was to operate. To have this properly grasped was a task of considerable difficulty, but as may be gathered from the legislation itself it was ultimately accepted. For proof of this it is necessary only to turn to the Public Health Act, 1848, which was the first Act bearing this name to be passed. Described as an "Act for Promoting the Public Health" its objects were set out in the preamble as follows:—

"Whereas further and more effectual Provision ought to be made for improving the sanitary Condition of Towns and populous Places in England and Wales, and it is expedient that the supply of water to such Towns and Places, and the sewerage, drainage, cleansing, and paving thereof, should, as far as practicable, be placed under one and the same local management and control, subject to such general supervision, as is herein-after provided: Be it therefore enacted"—and so on.

In this it will be noted that, in addition to referring to local management and control, there is reference to a need for "general supervision."

General and Local Boards of Health.

The body charged with this general supervision was to be known as the "General Board of Health" and was to consist of the First Commissioner of Woods and Forests and two other persons appointed by Royal Warrant. This body had power to appoint various officers and servants and "superintending inspectors"; its existence, however, was limited to five years. As a matter of fact it lasted about

ten years, but speaking generally it does not appear to have been liked. The whole Act, indeed, encountered a great deal of opposition, both before and after it was passed, some of those who opposed it doing so from dislike of the General Board of Health; others mainly because they objected to the provisions as to the setting up of local boards of health which involved, under certain conditions, the imposition of the body upon the locality and also, if they happened to be property owners, because they feared interference by the officers whom the Board was given power to appoint. The ostensible reason for objecting to the General Board of Health was that in regard to it there was a violation of principle in that it was not a representative body but consisted or might consist of paid officials. The real reason, however, was—as I think—that it displaced the Privy Council, which regarded itself as a sort of central health body, particularly in relation to epidemic diseases in respect of which it issued orders from time to time.

During the years the 1848 Act was in operation and the General Board of Health in existence a great amount of good was done and many local boards were set up. In spite of this, however, it disappeared, and the Privy Council once more became the central body. The local boards continued for some time longer, though they appear to have been in some places at loggerheads with some of the other bodies in their own area.

Early Health Officers.

One of the best things done by the Privy Council after they resumed the reins was the appointment of Dr., afterwards Sir John, Simon as medical officer. To take up this appointment Simon dropped that of medical officer of health of the City of London, a post created in 1848, of which he was the first holder. He was not, however, the first medical officer of health. Actually the first to hold this office in the country was Dr. Duncan, who was made medical officer of health of Liverpool in 1847 under a local Act of Parliament. The example set by Liverpool, and followed by the City of London, led to the appointment of medical officers of health in several other districts, and by 1856, in which year there were no fewer than 230 districts with a local board of health, each having power to make an appointment, there was quite a number of such officers.

In addition to making provision for the appointment of a medical officer of health, the 1848 Act provided for the appointment of other officers, the most important from our point of view being an inspector. To this officer there was given, in the first instance, the title of Inspector of Nuisances, and later of Sanitary Inspector, this being afterwards changed back to Inspector of Nuisances, and finally, we may hope, in the Public Health (Officers) Act, 1921, once again to Sanitary Inspector. In the 1848 Act, and to an extent also in other Acts to be mentioned later, the idea appeared to be that the officer most necessary was the inspector, the medical officer of health being brought in later for infectious disease purposes and to support the inspector in connexion with nuisances that might be dangerous to health, and something more than mere nuisances and eyesores. If this was the idea it did not quite work out, for in time the relative positions completely changed, the medical aspect of the work becoming more prominent, and the medically qualified taking the lead of the nuisance and sanitation officer as chief executive health officer.

The definite recognition and adoption of this principle in this country was made in the Public Health Act, 1875, in which one of the earliest duties imposed upon the local health authorities created by that Act was the appointment of a medical officer of health. Before this Act came into operation, however, many changes took place, while in the Act itself many new principles affecting health legislation and practice were developed and established. One of the most noteworthy happenings had been the relinquishment by the Privy Council of its position as central health body. When it gave up there was no return to the General Board of Health, its career having ended finally with the disappearance of the 1848 Act. The local boards of health had also suffered, as the view that health work was one of the ordinary activities of the district councils and not of the board of guardians or any ad hoc body came to be more widely accepted.

The Local Government Board.

To take the place of the General Board of Health and the Privy Council there was set up by a special Act of Parliament a body known as the Local Government Board, and as central authority for the bulk of health purposes it continued to function from the day of its formation until 1919 when, as everybody knows, the Ministry of Health was created, and unwept and unsung the old Board passed away, presumably for ever. By the time the Local Government Board was created Simon was practically ready to declare his task completed, by having the principle definitely recognised that in public health the function of a central body should be practically entirely supervisory and that of the local bodies executive. Himself a central body

officer, he never ceased to enunciate this principle, and throughout the whole time he was acting as medical officer of the Privy Council, as he tells us himself, he was using every effort and opportunity to work up the local authorities not only of the ports (important because of cholera in the prevention of which he was particularly concerned) but elsewhere, to establish a complete health and preventive unit within their own area. In Simon's mind there is no doubt that what bulked most largely was preventive work, and what he really wanted to see was a complete system of dealing with infectious diseases, including hospital accommodation.

Chadwick, it always appears to me took a wider as well as a more humanitarian view, desiring to see conditions improved not only because he felt sure that by improving them he was clearing the breeding grounds of disease, but because he believed that the people would be bettered in health generally and in all other ways if their surroundings were improved. In a word, it was social improvement Chadwick desired to see, and it was because of this and because of the vast influence of Chadwick that our health legislation, that of early times certainly, and to an extent that of to-day also, is as much social as it is medical.

Legislation and Environmental Conditions.

The occurrence of cholera outbreaks and threats of others had heightened the demand amongst the people for provisions relating to health and sanitation. The provisions wanted were those most likely to prove effective, and as there appeared to be reason in both sets—those dealing with environmental and social conditions and those aimed more directly at disease prevention—it was eventually decided to have both.

Amongst environmental conditions those proposed to be dealt with included: (a) Sewerage and drainage; (b) water-supply; (c) nuisances; (d) offensive trades; (e) housing; (f) food protection.

Curiously, little absolutely new legislation was required in order to make provision for most of these matters. As already stated, in the 1848 Public Health Act, though its main intention was to provide for health organisation, a number of sections relating to sanitary matters were given a place. These dealt with sewerage and drainage, making it the duty of the local board set up under the Act to take over existing sewers and look after them and provide new ones; and in regard to drainage forbidding the erection of houses without water, drains, and sanitary conveniences. The duty of cleansing and scavenging was also imposed upon the board who were required further to see to the provision of a water-supply. In regard to general matters, power was given to call for the cleansing and purification of houses, for the registration of common lodging-houses, and to forbid the occupation of cellar dwellings. Provision was also made for controlling slaughter-houses and offensive trades.

Local Health Legislation.

In a number of districts steps had already been taken to ensure that environmental conditions in respect of at least the matters mentioned should be improved. Power to do so had in some cases been obtained under special "Local Acts," the cost of which had been borne by the areas to which they were applied. Parliament, indeed, had even gone so far as to provide "Model Acts" for the use of districts desirous of bringing about improvements and promoting Acts for themselves. The chief of the model Acts was that known as the Towns Improvement Clauses Act passed in 1847. In this there were contained a large number of sanitary provisions, of which several districts had availed themselves.

The principle of allowing and even encouraging local authorities to promote health legislation on their own account is still practised and recognised. Indeed, quite a number of the provisions now included in legislation applicable uniformly over the country was first tried in a small way in one area under a measure locally operative only. Notification of infectious diseases, for example, was introduced first locally in Huddersfield, and tuberculosis came to be added to the list of notifiable diseases only after Sheffield had obtained provisions calling for notification in that town. New provisions of this kind, if satisfactory, rarely remain limited in their application.

Nuisance and Disease Prevention.

In 1848, in addition to the Public Health Act, there was passed a measure of considerable importance—viz., the Nuisances Removal and Diseases Prevention Act, 1848. So far as nuisances were concerned this Act contained, in addition to a list of conditions that were to be regarded as nuisances, provisions relating to the methods to be adopted with a view to enforcing remedies and preventing recurrence. As to infectious disease, the chief provisions were those that gave power to the Privy Council to issue orders making the part of the Act relating to infectious diseases operative in certain areas and to the General Board of Health to issue directions and regulations as to the steps to be taken with a view to prevention. The Act, it may be noted, was very

cumbersome, operating only in districts to which it was applied. In 1849 it was amended and in 1855 it was transformed into two Acts, one relating to nuisances and the other to disease prevention. With perfect safety, indeed, it may be said that provisions very similar to those contained in that Act are still in operation, most of them having been incorporated in the Public Health Act, 1875, in which all existing health Acts were consolidated. This Act is still in operation, supplying the power under which the bulk of public health work done in England is carried out.

Special Acts.

Housing.—Acts dealing with other special subjects were passed at or about the same time, amongst which reference may be made to some relating to housing questions. The Common Lodging Houses Act of 1851 grew out of the 1848 Act itself and continued in operation for a number of years in places in which the 1848 Act applied. Later, its provisions were incorporated in the 1875 Public Health Act, later again to be extended by a number of fresh provisions in the Public Health Acts (Amendment) Act, 1907. Further, with regard to housing, it may be noted that in 1851 there was passed what may be taken to be the first Housing Act. This bore the title of the Labouring Classes Lodging Houses Act, and was followed by the Labouring Classes Dwelling Houses Act of 1866 and 1867. In 1868 the Artizans and Labourers Dwellings Act appeared, and in 1879 the Artizans and Labourers Dwellings Improvement Act. The first Housing of the Working Classes Act proper was passed in 1885, the first including town planning provision in 1909.

Generally speaking, the principle of these Acts appeared to be to induce and encourage local authorities to undertake the provision of housing accommodation themselves. In the later period they were strengthened by the offer of financial assistance out of national funds, and by the grant of powers to acquire land and premises compulsorily. Power was also given to interfere with existing property, altering it or requiring the owners to alter it with a view to encouraging overcrowding and disproving the view that it is impossible to squeeze a quart into a pint pot. In the earlier Acts there was no reference at all to overcrowding, and it was not till later Health Acts were passed that power to deal with the condition was given, and then only as a nuisance.

Water-supply.—In relation to water supply special legislation also became necessary and was in fact provided. Under the Public Health Act, 1848, it was made the duty of the local boards of health to take steps with a view to providing a proper supply for their district and in due course the provisions relating to this subject were incorporated in the Public Health Act, 1875, and are still in operation.

Food.—Provisions in public health Acts and sanitary Acts generally soon proved to be inadequate in regard to food-supply. A large amount of special legislation has been passed, some relating to foods generally, others to definite articles. Since 1875 there has been more or less of a steady flow of food legislation. Between that date and 1897 several Food and Drugs Acts were passed, some with the object of clearing up legal difficulties, others to make provision with regard to special substances.

Milk.—It was not till just about the outbreak of war that any real attempt was made to legislate with regard to other than the chemical aspects of milk. That it might be a vehicle for the conveyance of infection had been recognised in the Infectious Disease (Prevention) Act, 1899. It is also a fact that in 1912, by means of regulations, the practice of doctoring it by the addition of preservatives was forbidden. No real legislation, however, existed in which it was written down as a possible factor in the occurrence of tuberculosis amongst children; or described as a substance that must be produced and sold only in a clean condition. An Act bearing to some extent on these matters—The Milk and Dairies Act—was passed in 1914, but for one reason or other its operation has been postponed from time to time since then, and it is still in a state of suspended animation. By way of a *pis aller*, in 1922, what was called a Milk and Dairies (Amendment) Act, was passed, and this is now in operation.

Disease Prevention.—The objective of all health legislation is disease prevention even though the provisions only aim at improvement in environmental conditions. The very first disease prevention provisions were actually wedded to those relating to nuisance removal in the Nuisances Removal and Disease Prevention Act of 1848, the placing of nuisance removal first being perhaps not without significance. At the time when they were separated from nuisance removal in 1855, a great fight was raging over the question of quarantine. Simon eventually succeeding in getting rid of quarantine and substituting for it a system of examining crews and passengers on board ships, especially those from infected ports; isolation at the port of all found or suspected to be suffering from particular diseases, and supervision of all others, who were allowed to leave on giving their names and the address in the place to which they were proceeding.

It was in order that the supervision in any place within the kingdom might be complete that Simon desired to have a proper and uniform local health organisation in all areas, with machinery for dealing with disease, including hospital accommodation. It was as a result of his efforts, no doubt, that in the Public Health Act, 1875, in addition to the provisions taken from the Disease Prevention Act, there were introduced others relating to hospitals, removal and isolation of infected persons, and cleansing and disinfection of premises, both as a safeguard against the outbreak of disease and against spread of infection from an infected house, from an infected person, and from the contacts with such a person. The provisions with regard to disease prevention have been very little altered as time has gone on. In a word, it might be claimed that the principles of disease prevention were enunciated by Chadwick and Simon, and that they have never been departed from since.

Personal Hygiene and Preventive Medicine.

It is the tendency of public health in the present day to attempt to make out that everything possible has been done so far as environmental conditions are concerned, and that the time for concentrating on direct effort for the benefit of the individual, for seeing what can be done for and through him personally, has arrived.

There is a curious tendency to believe that Chadwick and Simon and all these other great ones (if, indeed, the bulk of health officials and workers ever think of them and their work at all) gave no consideration whatever to the individual. For my part, and having regard to the opinion I have formed of these men, I find it impossible to believe that with their keen sight they could have failed to recognise that personal hygiene, welfare work, and preventive medicine in their very widest sense possessed tremendous importance and must somehow or other and sometime or other be provided for. They recognised also, no doubt, the difficulty and hopelessness of tackling the individual in their own day, on account of the ignorance of the people; only a really well-informed people can be made to make themselves a healthy people.

It must have been obvious to Chadwick and Simon that the proper course was to concentrate upon matters urgently calling for attention—viz., such social and environmental conditions as could be improved without assistance from, and even in spite of, the people, leaving personal hygiene and preventive medicine in its narrower sense of direct action in relation to the individual for the future and for the health officers and enthusiasts who were to come after them. And to-day what are we doing more than merely extending the practice then introduced?

Welfare of Mothers and Children.

So far as school-children are concerned the important Acts are the Education (Administrative Provisions) Act, 1907, and the Education Act, 1918.

As regards infants the measures to be noted are those requiring notification of births to the medical officer of health, the first, which was adopted, passed in 1907, the second making the requirement generally applicable which came into operation in 1915. These Acts were really preliminary to the Maternity and Child Welfare Act, 1918, the most important of the group, since it provided for the setting up of committees to whom power to do practically anything likely to benefit infants and their mothers was given. The Acts relating to midwives and their practice may safely also be counted in with those designed to assist certain sections of the population though their efforts are less directly produced.

A Guide to Healthy Living.

All health legislation is based on principle and consists exclusively of principles. The things it directs and orders all of us to do or to have done or to see done are just those things that an individual of principle would regard as right. As a whole, as I have already stated, sanitary law is not really law but a series of rules; it is more, it is a guide to right living, healthy living for ourselves and for each other.

We have much to be thankful for, in that we possess incomparably the best health organisation in the world and a health code which, though it may have faults, such as that it is complicated, makeshift in parts, and full of compromises, is nevertheless reasonable, workable, and free from stunts. In the main it conforms to the basic principle underlying all or most of our legislation in that it represents the will of the people and not the views of cranks and experts. All of it practically has been considered and reconsidered, drafted and redrafted, pruned and criticised, tried and tested, by numbers of persons and bodies before it is put into general operation. But most important of all, our health laws are something more than printed words; few of them are dead letters, most of them can be and are worked, and none of them are "imposed." As a result of their working and the application of their underlying principles, have come, amongst other benefits, a reduction

of the death-rate amongst infants from well over 100 deaths per 1000 births to under 80 in the course of 12 or 15 years, and such an improvement in the health of the people generally that the average age at death has been considerably postponed, and the average death-rate in any one year reduced from over 20 per 1000 in the "seventies" to just over 12, the figure at which it stands to-day.

A REVISED SYLLABUS IN MATERIA MEDICA AND PHARMACOLOGY.

A REVISED synopsis of the examination in Pharmacology, Practical Pharmacy, and Materia Medica, which has been drawn up by the examiners to the Conjoint Board of the English Royal Colleges (Dr. A. E. Russell, Dr. E. A. Cockayne, Dr. P. Hamill, Dr. A. J. Clark, and Dr. W. E. Dixon) will come into force at the examination in October next. Candidates will be required to recognise the drugs and preparations in Schedule A. They will also be required to know the constitution and the chemical and physical properties of the drugs in Schedule B, in so far as these properties are of practical importance in medicine. Finally, they will be required to show a competent knowledge of the pharmacological action and doses of the drugs in Schedule B, and of the preparations of these drugs. Experimental evidence as to the mode of action of drugs, therapeutics, pharmacy, and pharmaceutical details as to the modes of preparation of drugs will form no part of the examination.

Schedule A.—Mercury subchloride, mercury with chalk, arsenious anhydride, arsenical solution, potassium permanganate, ferrous sulphate, iron and ammonium citrate, iodine, ether, chloroform, paraldehyde, amyl nitrite, aromatic spirit of ammonia, chloral hydrate, carbolic acid, camphor, liniment of camphor, quinine sulphate, opium, ergot, oil of turpentine, creosote, compound senna mixture.

Schedule B.—Ammonium carbonate, ammonium chloride, ammonium acetate; potassium carbonate, potassium bicarbonate, potassium citrate; sodium sulphate, acid sodium phosphate; magnesium sulphate; calcium carbonate; silver nitrate; copper sulphate; zinc sulphate; lead acetate; alum; bismuth carbonate, bismuth oxychloride; barium sulphate; sodium hypochlorite, chloramine-T; iron, iron sulphate, iron perchloride, iron and ammonium citrate; potassium permanganate, hydrogen, peroxide; mercury, mercury subchloride, mercuric chloride; arsenious anhydride; arsenobenzol, neoarsenobenzol; antimony tartrate; potassium bromide, potassium iodide, iodine, iodoform; hydrochloric acid, citric acid, caustic potash; gentian, calumba senega; croton oil, castor oil, phenolphthalein, cascara sagrada, aloes, senna, rhubarb, jalap, colocynth, sulphur, liquid paraffin; tannic acid, kino; male fern, santalin, pelletierine tannate, oil of chenopodium; cod-liver oil, dried thyroid, pituitary extract, adrenalin hydrochloride; colchicum; digitalis, strophanthus, squills; caffeine, theobromine, theocine; amyl nitrite, sodium nitrite, nitroglycerine; ipecacuanha, emetine; nux vomica, strychnine; opium, morphine, codeine, apomorphine; belladonna, atropine, hyoscyne, homatropine; physostigmine; cocaine, ethocaine (novocaine); cinchona bark, quinine; rectified spirit, ether, chloroform, ethyl chloride, nitrous oxide; chloral hydrate, paraldehyde, barbitone; hexamine, oil of copaiba; ergot; carbolic acid, cresol, creosote; phenacetin, sodium salicylate, salol, acetylsalicylic acid; formaldehyde solution, paraform, menthol, camphor, thymol, oil of turpentine, cantharidin, mustard leaf.

PLAGUE PREVENTION IN JAVA.

AN illustration of the best form of publicity in the promotion of public hygiene is supplied by *Health*, a new monthly journal issued by the Commonwealth of Australia Department of Health, of which the second number (February, 1923) is concerned chiefly with plague prevention. Dr. J. S. C. Elkington, the chief quarantine officer of the North-Eastern division of the Commonwealth, contributes a graphic account of plague control in Java. In this tropical island the problem has been tackled by the Dutch Civil Medical Service with common sense and with clearness of vision, not hindered by the many difficulties of caste or religion. Investigation showed that spread from man to man was negligible as a factor, and the problem was reduced to the classical one of breaking the flea connexion between man and the very few species of rats which serve as reservoirs for human infection. Three species of rats—an "unholy trinity"—played this rôle, the most important one being the *Mus rattus griseiventis*, which is a strictly house rat, and cannot live a feral life in competition with the other prevailing species of rats. The problem, therefore, was one of rat-proofing houses and keeping them rat-proof. The means by which grass roofs were replaced by tiles and by which bamboo rafters were rendered rat-proof are given fully, and they are important as showing the practicability of the problems. The results were soon shown. As the Plague Prevention Service moved on plague disappeared in its track. Nothing was left to chance, and village by village the island is being rebuilt. In Dr. Elkington's words: "The Dutch authorities admit that it may take a long time and a great deal of money, but they refuse absolutely to accept plague as an ordinary feature of their colonial landscape in the twentieth century."

INSULIN: A SIMPLE EXPLANATION.

WE have received from the Therapeutic Foods Company (Energen Works, Willesden, London, N.W.10) a small pamphlet outlining the rationale of the employment of insulin in the treatment of diabetes. The leading facts are well set out, as is the reasoning which has led up to the various steps of research and experiment. Proper emphasis is also laid upon the limits of our existing knowledge, the warning being distinctly given that there is no proof as yet that insulin is definitely a cure for diabetes. Its employment will not eliminate the necessity for dietary regulation.

PUBLIC HEALTH IN SEYCHELLES.

AT the census of April 24th, 1921, the population of Seychelles was returned at 24,523 (11,974 males and 12,549 females), showing an increase of 1832 on the figures of 1911. The birth-rate for 1921 was 28.91 and the death-rate 15.98 per 1000. An epidemic of whooping-cough caused many deaths among young children. There was also a slight influenza epidemic. In spite of its proximity to the equator, Seychelles is reputed to be one of the most healthy of the British possessions within the tropics. Its climate is mild and equable. The maximum shade temperature rarely exceeds 86° F., while at night the temperature seldom drops below 74°. Thus, during the whole year the temperature only varies over a range of about 12°. The rainfall averages about 90 inches.

DENTAL RESEARCH: A SUGGESTION TO DENTISTS.

AT the close of his admirable lecture on the Diseases of the Periodontal Tissues, reported in full in the *British Dental Journal* for April 2nd, Mr. J. Howard Mummery drew attention to the great desirability of increased activity in research among the members of the dental profession. There are, he said, so many difficult questions in the pathology of the teeth and the surrounding structures that call for further investigation and so few workers in the field; and he went on to make the practical suggestion that everyone in practice should keep at hand a bottle of 10 per cent. formal and place such specimens immediately in the solution for investigation by those who are able to give them the necessary time and attention. Many valuable examples would not then be lost to science, as they now are.

THE AXE FOR CRIPPLES.

THE Board of Education has recently issued a circular (No. 1297) to local education authorities and to managers of special schools, containing preliminary proposals for reduction of staff in special schools. Mr. Morgan Jones questioned the President of the Board in the House of Commons on the effect of these proposals. The drastic economy suggested will in fact limit the practical work in the majority of these schools, so that it will become little more than a phantom. The teaching staff for crippled, blind, and deaf children cannot be strictly rationed without negating the whole conception on which this special education has been built up. We hope that the full provision of educational facilities for afflicted children will not be prejudiced by any short-sighted parsimony.

THE FITNESS OF FOOD-HANDLERS.

Kansas City, as we noted recently (*THE LANCET*, 1922, ii., 679), has been particularly active in seeing that its food is not subjected to gross risk in handling by diseased persons. In Texas the court of criminal appeal has now held valid an ordinance of the city of Dallas which provides that any person working in a "food establishment" must have a certificate stating that he has been examined by a "reputable physician" and found to be free from any communicable disease. This ordinance made proprietors of food establishments subject to medical examination, and the appellant whose appeal against a conviction, made in the form of an application for a writ of habeas corpus, was dismissed, was the proprietor of a meat market, and had been convicted of having worked in his own establishment without a health certificate. The equivalent in this country to an appeal of such a kind would be against a conviction under a by-law of a municipal authority, on the ground that it was *ultra vires*. The city of Dallas may be congratulated upon a very useful regulation, which might be studied and adapted far beyond its boundaries. In this country we have only to observe the conditions which surround the delivery of bread and milk to the consumer in order to appreciate the room there is for improvement in our precautions for the protection of the public health. The ordinance made by the city of Dallas, and upheld by its court, for "food establishments" apparently would provide against persons being carriers of disease who serve in any capacity in the markets where food is prepared and distributed, and in places where it is consumed, such as hotels and restaurants.

A Lecture

ON THE

PSYCHOLOGY OF COURAGE.

*Delivered at the Royal Air Force Staff College on
March 1st, 1923,*

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THERE are very real and proper reasons for hesitating to talk of courage to an assembly such as this, and the first is that in the good old days, not so long ago perhaps, both the lecture and the lecturer would have been officially banned. It would have been tacitly assumed that courage was inherent in every soldier because he was a soldier, and that under no imaginable circumstances could any soldier lack this quality. It would have been realised that any inquiry into courage must inevitably involve an inquiry into fear, a most reprehensible and dangerous subject for discussion in a school of military instruction. Moreover, seeing that courage is part of the official equipment of every soldier, that it rains upon him as manna rained upon the Israelites in the Wilderness, what possible benefit could accrue from an analysis of this heaven-sent virtue, even supposing that any analysis was possible?

Secondly, one instinctively hesitates to trespass on ground which has been consecrated, and that so recently, by so many great deeds and immortalised by some of the greatest writings in history. But it is as little my intention as it is within my power to declaim the virtues of courage or indulge in panegyrics. My object is quite other than that, and instead of eulogising the manifestations of courage I shall attempt to investigate its origin and purpose, together with the factors which modify it in one direction or another, not forgetting that this quality is not wholly confined to man, still less to the male sex, and that in man, in whom it reaches its highest pinnacle, there is the courage we call moral no less conspicuous and no less instructive than the courage we call physical.

My third ground for hesitation centres round the word psychology, a subject which has occupied the public stage very considerably of late and that, too, in a not very attractive way. The advance of science has always been along the path of hard work, and its progress has never yet been assisted by public parade or advertisement, factors which more often than not have tended to bring the thing studied into confusion, or even disrepute. We have evidence of this in the pseudo-scientific craving evinced for psychological theories in recent years, and we are now witnesses of the unedifying spectacle of an indiscriminating public flocking from Freud to Mrs. Eddy, from Christ to Coué, with an impartiality that might be refreshing were it not pathetic. We are here to-day, however, to study the psychology of the natural rather than that of the morbid, and seeing that this is a lay assembly I shall be able to dispense with the luxuriant language of modern psycho-pathology and have recourse only to words that we can all understand. You must not expect me to indulge in any metaphysical abstractions, for towards these I feel much as Gibbon did when he alluded to "the science, I should say the language, of metaphysics."

THE MEANING OF PSYCHOLOGY.

What, then, do we mean by psychology? We mean the study of the mind as part of the organism; and just as we cannot study the bodily organism without considering the stages through which it has been evolved, so is it unwise and misleading to study the mind of man apart from his history. Similarly the study of individual behaviour is meaningless and empty unless we also study environment, and the

environment of man is essentially man. In other words, the behaviour of any organism—and courage is nothing more than a quality of mind, however noble, associated with certain lines of behaviour—is conditioned largely by evolutionary factors. The only proper method, therefore, for pursuing the study of the mind is the comparative one, and once we realise that psychology is merely a branch of the larger science of biology we shall feel confident that we are on safe ground. I accordingly approach the psychology of courage from the point of view that "Nature has made up her mind that what cannot defend itself shall not be defended."¹ Now the idea that courage has been acquired along evolutionary lines, and that is the argument I propose to elaborate, might at first sight seem a little cold and forbidding to those who, content to indulge in a purely intellectualistic psychology, prefer to regard this noble quality as the particular and cherished attribute of man alone. But our bodies have been evolved through processes extending over millions of years, and have they lost anything of dignity or beauty in their evolution? Does its embryonic origin and intra-uterine development detract from the wonder of the infant or its beginnings in a seed from that of the flower? On the contrary, knowledge enhances wonder.

Again, just as it is a mistake to investigate the activities of man or of any other animal apart from their histories, so is it unsound to divorce the study of the activities of the mind from those of the body, for between body and mind there is an intimate co-partnership both in health and disease. Mental processes, particularly those associated with affect or emotion, are invariably accompanied by changes in the bodily state. It is not labouring the commonplace to draw attention to this fact; rather is it more correct to say that its universal recognition is responsible for the failure to realise its significance. Thus we blush with shame, cry with sorrow, when afraid we sweat and tremble, and when amused we smile. The stage, and particularly the cinema, actor depends for his success on the skill with which he can reproduce the physical manifestations of the emotions he is supposed to feel. Conversely it is well known that conditions originating within the body effect alterations in consciousness: hunger, for example, is associated with a particular type of contraction of the muscular wall of the stomach, and these contractions are terminated by the ingestion of food. Similarly, pain is accompanied by the inhibition or cessation of the secretion of gastric juice. Arguing on these lines it has even been suggested² that the source of behaviour is to be found in the periphery, or, to put it colloquially, the stimulus which compels the organism to such behaviour as shall satisfy its cravings arises in the organs of the body rather than in the higher nervous centres, while the latter merely serve to coördinate and integrate these various cravings of bodily origin. I mention this somewhat fantastic theory in passing in order to impress upon you the inter-dependence of mind and body.

COURAGE IN LITERATURE.

Proceeding now to examine the subject of courage as it appears in literature, certain features demand our attention.

The first is that courage is applauded for what it is, as an entity, and little if any attempt is made to investigate the elements of which it is compounded or the motives which underlie it. The element of fear, for instance, is either completely ignored or glossed over, and courage is left in splendid isolation, the perfect quality, heaven-sent, and "people forgive everything to it."¹

Secondly, perhaps because it lends itself more readily to treatment, or perhaps because it is more intelligible, the courage of the individual rather than that of the mass takes pride of place in the literature of all ages and nations.

Thirdly, it is interesting to observe that the actual words by which this quality is described have not always had the same meaning.³ This is not the case

with the word "courage," which although used by Chaucer as synonymous with "heart" (from the Latin "cor") as the seat of feeling, rapidly became identified with spirit, liveliness, vigour, and finally with readiness to face danger. With the word "bravery," however, it is different; derived from a French or Spanish source, it originally denoted the action of braving or acting the bravo—i.e., daring, defiance, boasting, swaggering, bravado—while the noun "brave" indicated a bully or hired assassin. Only later did it come to mean courage, valour, fortitude, and even now it sometimes implies show, ostentation, splendour, or finery, as, for example, in a description of a London crowd in the park, "Tens of thousands in all their Sunday bravery." So again the adjective "bold," an old Saxon word, was and still is used to indicate not only the stout-hearted, courageous, and fearless, but also the audacious, presumptuous, the opposite of modest, as in the phrase "a bold young woman," or "bold-face," meaning an impudent person. Bacon used "boldness" as synonymous both with impudence and hot-headedness; "the right use of bold persons," he says, "is that they never command in chief, but be seconds and under the direction of others; for in counsel it is good to see dangers, and in execution not to see them except they be very great."⁴

Fourthly, the most divergent views are current regarding the type of individual who is courageous, and the extremely varied incidence of courage has often been a matter for surprise. During and since the war, for instance, people have busied themselves with such intangible problems as to whether colliers are braver than clerks or artisans than farmers, problems which have proved unexpectedly difficult to solve. Captain John Brown, the hero of Kansas, held the belief that the quiet peaceable man makes the best soldier; "as for the bullying drunkards of which armies are usually made up, he thought cholera, small-pox, and consumption as valuable recruits."¹

"'Tis still observed that men most valiant are
Who are most modest ere they came to War."

On the other hand, we have the opinion of one⁵ who, writing about the recent war, remarks, "One of the things that astonished me most was to find out the types of men who were most brave; the drunkards, the rakes, and the dandies were a long way first. The high-minded, religious people of strong principles were often good diers, but not often good fighters. The orderly, well-disciplined, obedient types were more often than not quite useless in the face of the enemy." He goes on to say how he was discussing the psychology of bravery with Sem, the French caricaturist, and "was telling him how extremely gallant were the dandies and the fops, and he made this wise answer, 'Après tout, le courage—c'est une élégance.'" In the course of this lecture I hope we shall find some means of reconciling such opposite opinions, and shall come to understand that courage is something much more than "une élégance."

DIFFERENT FORMS OF COURAGE.

It is customary to recognise certain forms of courage. First and foremost is the pure and sublime courage, its beauty lauded in prose and sung in verse throughout history. "the endowment of elevated characters,"¹ a virtue regarded with reverence, awe, and envy, the sole prerogative of man. Such courage is eminently attractive from its being effortless and natural. It is characterised by equanimity and outward calm, and neither fear nor anger approach it; it is quiet, unruffled. Its tranquillity contrasts strangely with the power and energy it wields. "The immense esteem in which it is held proves it to be rare."² And at that we may leave it, not forgetting that women as well as men have contributed in no small measure to its irresistible appeal—Joan of Arc, Florence Nightingale. Psychologically this form of courage represents the complete success of the process by which fear is kept out of consciousness; this process, which is wholly unconscious, is called suppression.

Secondly, there is courage in spite of the presence of fear. Unlike "sublime courage" this form has received but scant attention in literature, and yet most of us would allow it to be one of our commonest modes of reaction to danger. The almost pointed way in which fear is ignored by the essayist suggests a disinclination to face facts which appear unpalatable and reflects a habit of mind both of writer and reader which prefers to arrive at comfortable conclusions rather than the truth. This method of dealing with unwelcome experience by professing to ignore it is, I believe, far less general than it used to be, and people nowadays are inclined to think with more honesty and less pretence. This advance has been greatly facilitated by the war, and especially is this the case with our views concerning courage. It is true that no one quite likes to admit feeling afraid, and such slang expressions as "wind up," "cold feet," and "needle," which enable us to talk freely about fear without actually naming it, are evidence of this natural disinclination. It was recently my privilege to listen to the evidence given by many eminently brave men before the War Office Committee on (so-called) Shell Shock; they all knew what fear was, and few of us would hesitate to admit in the words of one of them, and incidentally, one of you, that "All men know fear; some conceal it better than others, a few bury it out of sight, but it is there all the same."³

"If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you
Except the Will which says to them: 'Hold on!'"⁴

The second form of courage occurs, then, in the presence of fear, but fear is repressed sufficiently to allow of the dangerous situation being adequately dealt with; the process of repression is, however, not unconscious, as in the first type of courage, but conscious, sometimes acutely conscious.⁵

A third aspect of courage is recognised—namely, courage for the sake of display or notoriety, and it is in connexion with this form of courage in particular that the various meanings of the words "boldness" and "bravery" have their chief interest. From the psychological point of view this aspect of courage is of the greatest importance, for it implies that the individual is prepared to dare dangers in order to secure some advantage pleasing to himself. Now assuming that in the majority of individuals the presence of danger is normally associated with the presence of fear of some degree, we have here to deal with a case in which the emotion of fear is masked or actually replaced by another emotion—namely, the pleasurable emotion associated with personal advancement, gain, or success, which the individual anticipates. Now a much commoner mode of reaction to danger, both in animals and man, is by aggression, in which the emotion of fear is replaced by the emotion of anger; we "see red." Accordingly, I propose to call this third form of courage, whether it be the courage of anger or the courage of display, the "courage of substitution." It illustrates the complexity of the mechanisms at man's disposal, whereby threatening situations may be met, and, further, it constitutes a means whereby, when the danger is not averted, its consequences—namely, physical or mental pain—may be mitigated or completely suppressed by the substitution of some emotional state of great intensity. For example, a hack on the shin at football is often not felt until the game is over. Similarly, fervour, enthusiasm for a cause, especially religious enthusiasm, have inspired some of the most famous acts of courageous devotion, such as that of "the poor Puritan, Antony Parsons, who at the stake tied straw on his head when the fire approached him, and said 'This is God's hat.'"¹

The last form of courage which is generally recognised is what one may call negative courage, or, if you prefer it, the courage of ignorance. Here it is implied that fear is absent, not because it has been consciously or unconsciously suppressed, nor because it has been replaced by some other emotion, but

simply owing to the fact that the emotional capacity of the individual is much below normal or even absent. A lunatic, for instance, may perform acts of prodigious valour, but they are merely the acts of lunacy, devoid of affective tone. Similarly it is well known that the unimaginative individual is often the most brave, because he is incapable of appreciating the probable consequences of his actions. Closely allied to this is "Dutch courage," where the higher nervous centres are dulled by the action of alcohol, and perception and judgment are grossly interfered with.

THE OBJECTIVE METHOD OF INQUIRY.

Such is my attempt to sketch the lines along which courage has been studied by the lay writer. We must now turn aside and follow another path—namely, the psychological one—and see in what direction it leads us. At the outset of any psychological inquiries the layman may quite properly and justifiably adopt a critical attitude and demand to know what *method* it is proposed to use. He will have no difficulty in understanding that A can investigate the *bodily* organs of B and study their behaviour both in health and disease, but an inquiry into the *mental* activities of B is quite another matter, seeing that its success largely depends on B's acquiescence in the inquiry. Or B may be willing to acquiesce in A's investigations, but A's methods of approach and his interpretations of B's mental activities may be unconsciously prejudiced by certain views entertained by A which are very dear to him. Thus crudely expressed we have the essence of the difficulty which surrounds all psychological inquiry. For thousands of years man has been interested in the study of his own mind, and has adopted for that purpose the obvious or common-sense method of introspection. The fact that this academic or intellectualistic psychology has been largely barren of results is attributable to fallacies inherent to the method, for it does not tell us what man is, but what he thinks and feels and likes himself to be.⁹ This method was therefore discarded in favour of a more *objective* method of inquiry, which concerned itself particularly with behaviour—that is to say, with what the organism was doing. More recently the behaviourist school has been reinforced and finally replaced by another which, no longer content to ask "What is the organism doing?" insists on prosecuting the almost impertinent question "Why is the organism doing it? Why doing this and not doing that?"¹⁰ The founder of this school is Freud, whose persistence in the pursuit of truth has evoked the admiration even of those who most differ from him. Now since Freud is a name which probably has for most of this assembly a significance which differs from that which it has for me, a few words of explanation are indicated. Freud's investigations, originally confined to abnormal mental conditions, led him to the view that the root of the abnormality lay in a struggle between two forces—namely, the instinctive impulses and the repressive forces. The idea of mental conflict is the basis of all Freudian psychology. As the result of this conflict experience based on instinctive impulses, or rather on impulses associated with the primitive instincts, unless converted into other channels, frequently comes to be buried or repressed owing to its incompatibility with social standards, and Freud postulated a new region of the mind, termed "the unconscious," which serves as a sort of reservoir for all experience thus repressed. By the term "the unconscious" we denote all experience which cannot be brought into the field of consciousness by any of the *ordinary* methods of memory or association.⁸ Further, the content of the unconscious is essentially affective or emotional in character, and although buried, it continues to exert an influence on the conscious. The content of the unconscious can, however, be brought into the field of consciousness under certain conditions—namely, in dreams, in hypnotic states, and by Freud's particular method of free-association or psycho-analysis. It is well known that Freud, as a result of his investigations, was led to the conclusion that the great bulk of repressed experience

was connected with the sexual instinct. This conclusion has failed to find anything like universal acceptance, but Freud's claim to fame does not rest on his interpretations, but rather on the new conceptions which he has advanced concerning the *mechanisms* of mental activities, as I have briefly sketched them. These conceptions will in all likelihood share one day the fate of many other theories, but for the present they provide a consistent working hypothesis which has already stimulated psychological inquiry to a quite remarkable degree. For these reasons it is preferable to make use of them, rather than reject them because in certain hands they "have sometimes led to the discovery of unpleasant aspects of human nature or because they come from Vienna."⁸

THE COMPARATIVE OR BIOLOGICAL METHOD.

The Freudian psychology is, however, open to one important criticism, especially when it is applied, as its adherents are now applying it, to normal behaviour, and the criticism is that its point of view is essentially human and ignores biological considerations. It recognises the evolution of the adult from the child, but is silent concerning the evolution of the species. The comparative or biological method is naturally free from this objection, and is the one along which I particularly wish to direct your thoughts to-day. While free to make use of the mechanisms of mental processes as enunciated by Freud, its outlook is far wider and embraces the whole range of animal life. In its study of man the comparative method adopts the point of view that man as a solitary animal is unknown, that he is not completely free to act as his individual fancy dictates, but is subject to certain instinctive influences, some of them common to all animals and to others that are not.

As you are doubtless aware, it is not always easy satisfactorily to differentiate between instinct and intelligence. Instinct is innate and independent of experience, whereas intelligence is acquired in the light of experience. But in any intelligent behaviour it is often difficult to exclude innate factors, while conversely it is difficult, especially in those animals, such as man, which are born in a state of great immaturity, to exclude individual experience however instinctive their behaviour may appear to be. The instincts common to all animals, or primitive instincts, are two in number.³ First is the instinct of self-preservation, which can be subdivided into (a) the purely appetitive instincts underlying nutrition with their corresponding affective states of hunger and thirst, attraction towards the useful and repulsion towards the harmful, and (b) the danger instincts, with their various modes of reaction such as flight and aggression. The second is the reproductive instinct, again divisible into (a) the purely appetitive, and (b) the parental instinct; with this we are not concerned to-day.

Now it is important to observe that all instinctive reactions are accompanied by *feeling*, in such a way that the emotions may be regarded as the affective aspect of instinctive reactions. For example, the primary states of pleasure and pain are the psychical accompaniments of the fundamental reactions of attraction towards the useful and repulsion towards the harmful. Similarly the reproductive instinct is associated with the emotion of love and passion, and in its parental aspect with the tender emotion, especially that of the mother towards her young. Again, in respect of the instinct of self-preservation we find the emotion of fear associated with reaction to danger by flight and the emotion of anger with reaction to danger by aggression. These emotions, moreover, are exceptionally powerful, as evidenced by the conduct of the animal when completely under their influence and by the gross physical alterations which they effect. The common phrases "half dead with fear" and "beside oneself with anger" bear ready witness to these facts. From the biological point of view we are justified in regarding these emotional states as being purposive, in so far as they tend to reinforce the instinctive reaction. Thus not only does the tiger,

when cornered, fight with greater vigour because he is angry, but, in addition, the physical changes associated with anger, by increasing the blood-supply to the brain and muscles, render him more efficient. Correspondingly in those animals whose normal reaction to danger is by flight, fear reinforces the instinct and renders their flight prompt and successful. The same is, of course, true of the sexual instinct, as evidenced by the ferocity and restless activity of the male in the breeding season, and by the vigour, I had almost said courage, displayed by the mother in defence of her young.

THE GREGARIOUS INSTINCT.

In addition to the two primitive instincts we can recognise a third instinct—namely, the social instinct, through the agency of which cohesion is maintained in the herd, or group, or society. This is often called the gregarious instinct, under the influence of which the individual members of the group unite in common action for furthering the welfare of the group.† Three types of gregariousness can be identified, the aggressive as exemplified by the wolf pack, the defensive as exemplified by the sheep, and the socialised as exemplified by such varied species as the worker bee, the penguin, and man. Gregariousness, then, is not a modern or superficial condition, but a very old and fundamental one, and has certain distinguishing features. The first of these is the preference shown for companionship and the feeling of comfort and security derived therefrom. The second feature is the homogeneity of the herd or group; this is attributable to the suggestibility of its component members and to their specific sensitiveness to suggestions which come from the herd. The obvious effect of these conditions is to ensure that each individual shall conform to the behaviour of his fellows and shall show preference for herd opinions as opposed to any others. They are evidently not the conditions to encourage originality. The sensitiveness of the herd is well seen in the sheep in the rapid but silent manner in which the approach of danger is communicated to the flock. Now the sheep is a timid animal that reacts to danger by flight, and its timidity, together with the sensitiveness of its individual members which allows of the rapid communication within the herd of the approach of danger, represents a mechanism for defence. Similar suggestibility and sensitiveness are manifested in aggressive societies such as that of the wolf and dog by the howling of the pack and "the cry of the hounds." Thirdly, the gregarious animal is susceptible to leadership, provided that the leadership is for the good of the herd as judged by herd opinion. In other words, there is a submissiveness of the individual within the herd and a resistiveness of the herd itself to individuality. Fourthly, in all gregarious animals we have to recognise the existence of what has been called herd impulse, by which is denoted a force which is capable of endowing outside influences with the energy of instinct and of conferring instinctive sanction both to beliefs and action. This surely is the idea underlying Montaigne's aphorism: "Custom is a second nature and no less powerful." The primitive instincts, then, of self-preservation and reproduction control from within and the herd instinct from without, and in the latter we can already identify the germs of what we call public opinion. It will further be evident that the gregarious instinct must at times be opposed to the more primitive instincts and so introduces a factor which promotes mental conflict. In many respects, however, it reinforces the primitive instincts and facilitates the performance of their reactions.

Man differs from the infra-human animals not in being devoid of instinctive feeling, but in having a larger intelligence which permits him to respond in so great a variety of ways that the instinctive character of his actions is often not obvious in his behaviour. He has further acquired the capacity to divert the energy arising from instinctive impulses

into other channels, artistic, æsthetic, athletic, and so on, and has developed within the herd an individuality which tends to increase with every advance of his civilisation. In spite, however, of his greater individuality and increasing freedom within the herd, it remains a mistake to regard man as fundamentally independent of his biological history, however pleasant this view may be to the intellectualist; and seeing that man's personality is incomplete apart from the herd, it follows that human psychology must always be the psychology of associated man, for man as a solitary animal is unknown.

THE INFLUENCE OF HERD INSTINCT ON HUMAN BEHAVIOUR.

The evidence that man is gregarious is overwhelming, and the influence exerted by herd instinct on human behaviour is manifested in many directions. His intolerance of solitude, for example, both physical and mental, is seen in his desire for companionship and is reflected in the proverb "Out of sight, out of mind." It is further responsible for his hesitation in advancing new opinions, for the chilly reception which he accords them, and for his reserved and somewhat belated recognition of the courage displayed by those who insist on maintaining them. His relations with his fellows are dependent upon their recognition of him as a member of the herd, and the formalities subserving mutual recognition are correspondingly important while the strictest observance is enjoined in their performance. These formalities, moreover, whether it is the hand-shake, the raising of the hat, or the salute, are comparable to those employed by other gregarious animals such as the dog, however much the intellectualist may strive to confuse their identity. It would even appear that speech was primarily introduced to subserve mutual recognition rather than exchange of ideas, and it is noteworthy that ordinary conversation is largely confined to subjects of common interest to the herd, such as the weather, or the morning news which everybody has read. Another prominent feature of man's gregariousness is his suggestibility and his greater sensitiveness to the voice of the herd than to any other influence. Feeling is dominated by herd opinion, and reason cannot enforce belief against herd suggestion; experience before it is accepted must meet with herd approval, and this again leads to delay and hesitation in acceptance. Consequently we find that settled opinions, many of them irrational, are characteristic of the societies, classes, and cliques of which the modern herd is composed, but the force with which such opinions are endowed by herd impulse more than compensates for their irrationalism and for the slender knowledge on which they are based. We derive much comfort from certitude, and are easily deceived by custom. The truth of these statements is obvious when we realise the enormous import of the expression "bad form," and our irresistible tendency to "lay down the law" and express confident opinions on subjects concerning which our ignorance may be complete. There is a wealth of meaning in the Gilbertian lyric—

"Every boy and every girl that's born into the world alive
Is either a little Liberal or else a little Conservative."¹¹

It is owing to somewhat similar considerations that the most satisfied members of the herd are often the most dull, for they attain mental certitude and comfort by implicit obedience to the voice of the herd and by an indifference to experience amounting almost to hostility. In this class are to be found the more reactionary elements, who nevertheless take pains to invite compassion by the use of some such idealistic title as "Die Hards." Compare, too, the readiness with which the herd entrusts authority to the orthodox and the old, to those in fact who, timid of novelty and shunning the enthusiasms of youth, "do nothing in particular, and do it very well."¹¹ "Men of age object too much, consult too long, adventure too little, repent too soon, and seldom drive business home to the full period, but content themselves with a mediocrity of success."¹²

† In the following pages the views elaborated by Trotter have been closely and often literally followed. (Vide ref. 9.)

THE UNCONVENTIONAL TYPE.

But besides the "stable," or resistive class, with its orderly, stereotyped habit of mind, there is to be found in modern society, and in ever-increasing numbers, a diametrically opposite one, whose energy, enthusiasm, unorthodoxy, and instability are derived largely from their incapacity to assimilate unwelcome experience by the simple process of false rationalisation and indifference. Moreover, it is on the presence in the herd of the unconventional that progress largely depends, and an illuminating feature of the war and post-war period has been the increasing tolerance manifested by the community to the activities of what in the broadest possible sense may be called the unstable. In the past these individuals, pioneers and extremists, have paid the heaviest penalties for their preference for originality and ideals rather than for herd opinion, and have faced with dauntless heroism the dungeon, the rack, the scaffold, and the stake. With their larger perspective so often opposed to the more limited outlook of the herd, they lack the mental comfort which characterises the "stable," and their capacity for brilliance of conception and boldness of execution is seriously handicapped by their erratic disposition and greater proneness to fatigue. Any discussion on courage must be incomplete unless attention is drawn to these facts, for during the war we were witnesses of the spectacle of individuals of the most varied temperaments and upbringing being brought into an atmosphere wholly foreign to their natures, and displaying evidences of courage and endurance at a cost to themselves which it was often difficult to understand and almost impossible to estimate.

Further evidence of the gregariousness of man is to be found in his increased susceptibility to leadership in war—i.e., when the whole herd is threatened; the tremendous influence exerted by Lord Kitchener provides a recent example of this. It would also appear that the wide and traditional acceptance of the analogy so often drawn between Christ and His Church and a shepherd and his flock bears testimony to the same characteristic of human society.

PUBLIC OPINION.

These various evidences of gregariousness in man may appear to have little to do with the subject of this lecture. Attention is directed to them, however, in order to emphasise the enormous importance of herd instinct in the influence which it has exerted throughout the whole history of man, and is exerting at the present time. I now pass on to consider another element of gregariousness to which brief allusion has already been made under the name of public opinion. We have learnt enough of herd instinct to realise without further elaboration that the origin of our moral codes is to be found in herd opinion. In the rites and solemn ceremonies of primitive man we can detect the germs of modern conventions, sanctions, and laws, and the energy imported to these by herd impulse explains the almost unlimited power which lies behind them. Moreover, seeing that in gregarious animals below man the welfare of the individual is subordinated to that of the herd, it is impossible to avoid the conclusion that altruism is a product of the gregarious habit, and must therefore be regarded as being just as natural as any other instinct.¹³ It has been computed, for example, that the average worker bee, deaf to all voices other than that of the hive, works herself to death in about two months; she does it, moreover, with exuberant energy and every appearance of joyfulness, a little fire ablaze with altruistic feeling and unselfish enthusiasm.⁹ Again, the dog, accustomed originally to obey the voice of the pack and now subservient to a human master, will spontaneously return to his master to receive the punishment he knows he has merited with every appearance of guilt. Herd instinct, in fact, introduces a mechanism by which the sanctions of instinct are conferred upon acts by no means acceptable to the body or mind, a mechanism in which originates the sense of duty, conflicting often with the more primitive instincts of

self-preservation and reproduction. According to this argument, it is a mistake to regard man as an intrusion into the world, fundamentally independent, splendidly isolated, divorced from history, responsible to himself alone; on the contrary, it is far more rational to regard not only the bad but also the good elements of man's behaviour as products in no small measure of his development. However complex his behaviour, however obscure his motives, man is sensitive to the call of duty, of love, and of honour, altruistic, generous, and courageous not because reason recommends it, but because he must be.⁹

MECHANISMS TO ENSURE SAFETY.

Let us pause for a moment and take stock of the views we have attempted to formulate. It has been pointed out that the psychology of man is largely determined by his biological history, and that his conduct, being largely instinctive, is open to generalisation to a far greater extent than is sometimes supposed. In addition to the primitive instincts, man, like many other animals, is subject to herd instinct, modifying, and often conflicting with, the former, while both frequently conflict with experience. It has further been emphasised that the instincts are associated with various emotional states which serve to enhance interest and facilitate the successful accomplishment of instinctive reactions. We have seen, also, that altruism is an essential product of the gregarious instinct and that in the energy derived from herd opinion we can identify the germs of the moral codes by which human society is governed and controlled. Seeing, therefore, that the welfare of the herd predominates, it is not surprising that mechanisms have been evolved to ensure its safety. One such mechanism, I submit, is courage, which though called by that name only where man is concerned is not wholly unrepresented in animals. Owing to his greater intelligence and broader outlook, man can not only respond to any threatening situation in a variety of ways, but also has a far greater variety of threatening situations to respond to. Consequently the scope for the display of courageous qualities is enormously increased in man, so that we recognise beside physical courage, the courage we call moral, manifested in the field of art, of politics, of religion, and commerce. Moreover, owing to the greater individuality of man, entailing wide differences in adaptation, it happens that our mode of response to the same set of circumstances is subject to wide individual variations. So, too, there is a curious specificity about courage, as seen from the fact that a woman may present a bold front to a burglar and flee in terror from a mouse. "There is a courage of the Cabinet as well as a courage of the field; a courage which enables one man to speak masterly to a hostile company, whilst another who can easily face a cannon's mouth dare not open his own."¹¹

"PURE" COURAGE.

If now we review the forms of courage previously alluded to in the light of what has been learnt, it is easy to understand that "pure" courage represents the perfection of the psychological processes which have as their object the successful response to danger. Here fear, the presence of which in anything like an acute form would inevitably interfere with the response, is completely suppressed by a process which is wholly unconscious, and the individual, or unit, is free to deal with the situation calmly and unperturbed. It has recently been suggested⁸ that man's normal mode of reaction to danger is by manipulative activity, and that if his freedom of action is interfered with fear tends to obtrude into consciousness. This view finds support in the universal experience that trench warfare against an unseen enemy is infinitely more trying than a war of movement. Another form of courage is that in which the emotion of fear is replaced by some other affective state, of which anger is the most common, but by no means the only one. This form of courage admirably illustrates the complexity of man's behaviour, for the emotional forces which underlie it may be of the most varied kinds, such as

love of notoriety, covetousness, personal pride, religious enthusiasm, and so on. This aspect of courage in a recent article in the *Times* has been quite inappropriately termed the "courage of ignorance." In contrast with these two forms of courage which we may call the courage of fearlessness, there is the courage despite the presence of fear, or the courage of fearfulness. Here the enormous power wielded by herd opinion, in the shape of an *instinctive* sense of duty, comes into play, and ensures that the unit, be it XI. or XV., regiment or squadron, class, or nation, shall not be jeopardised by the frailty of its individual components. Was there not once a Spartan boy, who to escape the disgrace of being branded a thief permitted the fox which he had stolen and concealed under his tunic to gnaw into his entrails? "I can well die but I cannot afford to misbehave."¹¹

COURAGE AND MENTAL HEALTH.

Human courage, then, in all its forms, may be regarded as a defence-mechanism of great complexity and great efficiency, and the universal esteem in which it is held, by conferring upon it the force and energy of herd instinct, adds enormously to its usefulness to the community. The efficiency of this mechanism is subject to the rules which modify mental health in general, for courage may be properly regarded as evidence of the existence of mental health. Now health of mind depends on the presence of a state of equilibrium between instinctive tendencies and the forces by which they are controlled. Weakening of the latter from whatever cause leads to the development of various abnormal states, the character of which largely depends on the particular "make-up" of the individual affected. The most frequent cause of weakening of the controlling forces is undoubtedly fatigue, the result of long-continued stress and strain, loss of sleep, exposure, and so on. In the air an additional factor is operative—namely, the defective oxygenation of the blood, and consequently of the brain, which occurs at high altitudes. During the war the conclusion was repeatedly forced upon me that courage and morale tend to evaporate at high altitudes, and I believe it was owing to this that relatively few decisive combats were fought at the greater heights to which your machines could attain. Under conditions of stress the normal controlling mechanisms become weakened, and fear which had hitherto been completely suppressed, gradually obtrudes into consciousness. This at once introduces an element of conflict, since fear, owing to its incompatibility with social standards is regarded with shame, and its further intrusion has to be resisted at all costs. Thus begins the process of *conscious* repression which in many cases is successful in restoring the normal mechanisms. In others, however, and especially when the conditions of stress persist, conscious repression fails in its object, and a state of anxiety, with its attendant physical and mental manifestations, gradually supervenes.⁸ The development of such anxiety states is essentially due to fatigue of the higher controlling mechanisms. Now fatigability is a characteristic of all living things and its natural remedy is rest, and it is important to recognise that alternating periods of activity and rest are merely illustrations of the rhythmicity which pervades all life, as evidenced by the seasons of the year, the ebb and flow of the sea, the beat of the heart, and the states of asleep and awake. "To everything there is a season and a time to every purpose under the heaven; a time to be born and a time to die, a time to break down and a time to build up."¹⁴

THE OBJECT OF MILITARY TRAINING.

The more military applications of these various considerations are obvious from the fact that the essential object of military training is to establish morale and enhance the homogeneity of the herd. This is effected in various ways. Your leaders, generally speaking, have been recruited from a class in which respect for tradition and custom figure prominently; accustomed to rule as lords of the land, they

have been wont to indulge their leisure in vigorous and dangerous sports and pursuits, and to cultivate the spirit of adventure under a strict, if somewhat inelastic, code of class discipline. Drill, again, encourages responsiveness and increases the awareness of each individual of what is passing in the minds of his companions. In addition to the processes of habituation and heightened suggestibility which characterise regimental life and lead to cohesion, morale is further strengthened by the wise and systematic use of sublimation. By this term is denoted the process in which the energy arising out of conflict is diverted from some channel which leads in an asocial or antisocial direction, and turned into one leading to an end connected with the higher ideals of society.⁸ This is the significance of *esprit de corps*, pride of regiment, belief in a cause, and, in fact, of all those influences by which a soldier is encouraged to set so high a value on his duty towards his comrades that he is ready to die in its execution.

"We would not die in that man's company
That fears his fellowship to die with us."¹⁵

The innumerable manifestations of courage and endurance exhibited during the war were only rendered possible by this spirit of comradeship, and in this and in the use of mass attacks we recognise unmistakable evidences of gregariousness. A further instance of the heightened suggestibility of the well-trained soldier is to be found in the contagiousness of courage; it is "caught as men take diseases one of another"¹⁶; and may rapidly infect a whole army. There are, I think, indications at the present time that those responsible for military training in this country, without in any way losing sight of the inestimable importance of all those factors which make for disciplined cohesion, are more inclined than they have been in the past to pay attention to the psychology of the individual soldier. This question is of particular significance in a force such as yours, where, from the very nature of your duties, individualism must always be more prominent than in other branches of the Service. It is at any rate certain that responsiveness and automatic obedience to orders can be overdone. "The success of the Captain of Koepenick, for example, could only be possible in an army whose members had, through a special course of training, reached such a pitch of responsiveness to the commands of men in uniform that they obeyed without question the ludicrous orders of a cobbler."⁸

CONCLUSION.

In this study of the psychology of courage I have attempted to expose the fallacies inseparable from the purely intellectualistic method, and the limitations imposed by a view which regards courage as the sole prerogative of man. Especially is the wide divergence of opinion as to the type of individual, or class, likely to exhibit courage to be explained by the fact that courage has been too often regarded as an isolated quality of isolated man, while the motives underlying it have been consistently ignored, presumably because they are sometimes unsatisfactory. I would ask you once more not to be misled into thinking that courage loses anything of beauty or nobility because evidences of its existence are to be found in animals lower, much lower, than ourselves. It cannot surely handicap a young soldier to know that the seeds of courage have been sown in him by Nature? We have to be courageous or fail in our struggle for supremacy. For nearly three years of war I was permitted by a fortunate chance and the kind indulgence of my superior officers to be a safe, yet intimate, witness of many of those acts of irreproachable courage which stand to the credit of your Service; so close an insight into the mysteries of courage only served to enhance my admiration and arouse my curiosity. But curiosity as to its nature will never prevent us from idealising courage. Courage, from whatever angle we approach it, whatever origin or purpose we assign to it, no matter what form it assumes, nor even what motives underlie it, will always be a quality beloved of man. The courage of attack, the

courage of defence, the courage of art, the courage of debate, the courage of motherhood, the courage of grief, the courage of adventure, the courage of ill-health, the courage of the martyr, the gambler, and the spy, each for itself we respect and admire. And, after all, "it is not life that matters, but the courage that we bring to it."

REFERENCES.

1. Emerson: Essay on Courage in Society and Solitude.
2. Kempf: Psychopathology. London: Henry Kimpton. 1921.
3. Murray's Dictionary.
4. Bacon's Essays, xii., Of Boldness.
5. Neville Lytton: The Press and the General Staff. London: Collins. 1921. Pp. 2, 3.
6. Report of the War Office Committee of Enquiry into Shell Shock. 1922. Pp. 31.
7. Rudyard Kipling: "If."
8. Rivers: Instinct and the Unconscious. Cambridge University Press. 1922.
9. Trotter: Instinct of the Herd in Peace and War. 1915.
10. Carver: Jour. Neurol. and Psychopath. 1921-22, ii., 39.
11. W. S. Gilbert in Iolanthe.
12. Bacon's Essays, xlii., Of Youth and Age.
13. Karl Pearson: Referred to by Trotter (q.v.).
14. Ecclesiastes, iii., 1-3.
15. Henry V., Act IV., Sc. 3.
16. Henry IV., Pt. II., Act V., Sc. 1.

Three Lectures

ON THE

CULTIVATION OF TISSUES AND TUMOURS IN VITRO.

Delivered at University College, London.

By A. H. DREW, D.Sc.,

IMPERIAL CANCER RESEARCH FUND.

LECTURE I.*

(Delivered on Feb. 28th, 1923.)

THE TECHNIQUE OF TISSUE CULTURE.

In this course of lectures I propose to deal with the cultivation of tissues in media under three separate headings. In this, the first lecture, we shall have to consider the subject from what is perhaps its least interesting aspect—viz., the technique which it is necessary to adopt in order to obtain cultures, and having obtained them to keep them growing continuously in subculture. In the second lecture I propose to deal with the question of the growth of normal tissues in vitro, and in the third and last lecture to discuss the application of the method to cancer research and to consider some of the results obtained from a study of cultures of tumours in different media.

THE PLASMA MEDIUM.

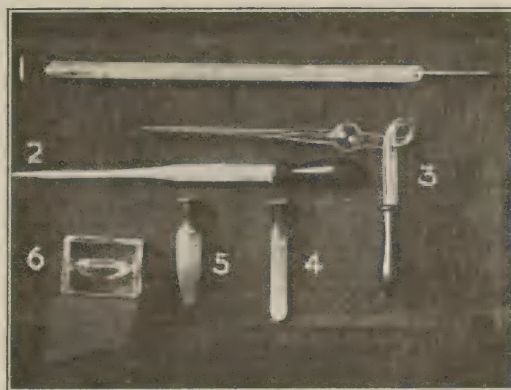
Although in the past many different media have been tried with greater or less success, the only two which have proved to be really successful are a plasma medium and a saline medium recently devised. It will be necessary, therefore, to consider the best methods for obtaining plasma, and the preparation of the saline medium. Although in America chicken plasma has been more used than any other and chicken tissues chiefly studied, I propose to discuss the growth of mammalian plasma. One of the most convenient animals for such a purpose is the rat, which gives a good yield of plasma, in which grow readily not only rat tissues, but those of the mouse, guinea-pig, and rabbit, and doubtless many others.

Rat Plasma.

In order to prepare plasma from such an animal as the rat a number of instruments are required in the following order. Three or four pairs of sterile forceps, two pairs of stout scissors, and a pair of bone-cutting forceps. A long glass tube, about 5 mm. in bore, into one end of which is fused a stout, hollow platinum needle. This tube is coated with

a mixture of hard and soft paraffin, by being immersed in a deep vessel containing equal parts of paraffin melting at 45° and 58° C. The tube is withdrawn from the molten mixture and quickly drained, care being taken to see that the needle is not choked. The tube is stored till required in a copper vessel, which is cooled by a mixture of ice and salt. Three or four ordinary Pasteur pipettes are coated with paraffin and cooled in the same manner as the needle. Two or three centrifuge tubes are also paraffin-coated and cooled, and a few small test-tubes treated in the same manner. (Fig. 1.)

FIG. 1.



1. Platinum needle fused into glass tube and coated with paraffin, for obtaining blood from heart.
2. Paraffined Pasteur pipette for plasma.
3. Right-angled pipette for saline medium.
4. Paraffined tube for storing plasma.
5. Paraffined centrifuge tube for plasma.
6. Glass capsules for storage of tissues.

The rat is anaesthetised with ether, pinned out, and the thorax opened aseptically. The heart is exposed and steadied with forceps, and the platinum needle plunged into one of the ventricles. The blood is allowed to flow into the tube till the flow slackens, when the tube is withdrawn and the contents are at once run into the centrifuge tubes, which are ice-cold. These are placed in the buckets of a centrifuge and the blood at once centrifuged at high speed for three minutes. The clear supernatant fluid is pipetted off with a cold paraffined Pasteur pipette into a second centrifuge tube, and the plasma again rapidly centrifuged for one minute. With a paraffined pipette some three-quarters of the supernatant fluid is pipetted off into a small paraffined test-tube, which is at once placed in a copper vessel surrounded with ice and salt, where it remains till required. Such a plasma, although it will give limited growth of embryonic tissues for a few generations, is not suitable for continued cultivation, for which the addition of an embryonic extract is necessary.

Embryo Extract.

Young embryos of the rat or mouse are taken at about the twelfth day. The parent is anaesthetised and the abdomen opened with aseptic precautions. The embryos are removed and are placed in a sterile Petri dish and covered with Locke's solution. They are next removed from the membranes and washed in another dish with Locke. They are next cut up with sterile scissors into coarse fragments, and the fragments transferred to several changes of Locke to free them from blood. This is essential, as more than minimal traces of blood inhibit growth. As soon as all obvious traces of blood have been removed, the embryo fragments are placed in a small tumour mincer (Fig. 2) and are finely minced. The pulp is transferred to a sterile tube and an equal volume of Locke's solution added, and the mixture is well shaken. It is then frozen and thawed twice to disintegrate the cells, and centrifuged at high speed for 15 minutes. The clear fluid is pipetted off and constitutes embryo extract. As an additional

* Lectures II. and III. will appear in coming issues of THE LANCET.

precaution the extract may be filtered through a Berkefeld filter.

THE SALINE MEDIUM.

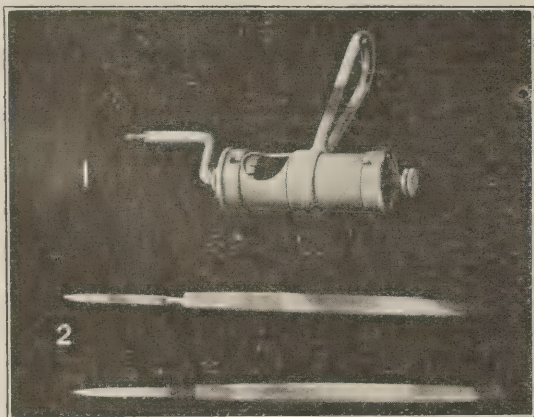
With the saline medium no plasma is required, but the addition of embryo extract is necessary. The saline medium has the following composition:—

Saline Constituents of Medium.

NaCl	..	..	..	0.900	CaH ₂ (PO ₄) ₂	..	..	0.010
KCl	..	..	..	0.042	MgHPO ₄	..	..	0.010
NaHCO ₃	..	..	..	0.020	H ₂ O	..	..	100.0
CaCl ₂	..	..	..	0.020				

In actual practice it has been found convenient to make up the six saline solutions separately, and of ten times the final strength. The magnesium salt is not soluble, but if it be suspended and steamed with the other salts, solution takes place. These solutions can be kept in stoppered bottles, and when required aliquot quantities can be pipetted off into a flask, and sufficient distilled water added to give the requisite concentration. A complication is introduced by the necessity of steaming each of the two calcium solutions, and the sodium bicarbonate solution separately from the other saline members of the final solution; unless this be done no growth will take place. To make up 50 c.cm. of culture solution 5 c.cm. of each of the solutions of sodium chloride,

FIG. 2.



1. Mincer for mixing embryos for the preparation of embryonic extract. 2. Knives for cutting up tissues.

potassium chloride, and magnesium hydrogen phosphate is added to 20 c.cm. of distilled water in a small flask. This mixture, the two calcium solutions, and the sodium bicarbonate solution are then steamed separately for ten minutes. When all these have cooled, 5 c.cm. of each of the calcium solutions and 5 c.cm. of the sodium bicarbonate solution are added and the salt mixture is ready for use. In order to use either the plasma medium or the saline fluid, embryo extract is necessary, and for general use we find the best strength to be about one part of the embryo extract to four of plasma or of saline.

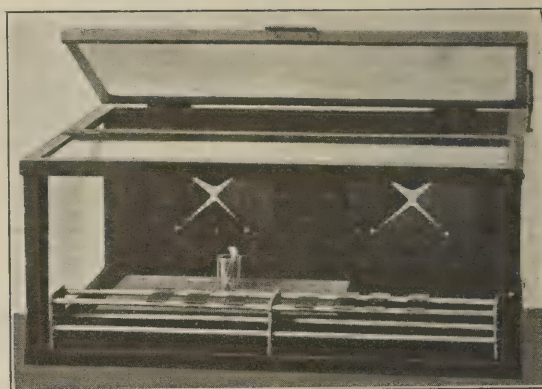
PREPARATION OF TISSUES FOR CULTURE.

A pregnant rat or mouse is selected and the abdomen opened with strict aseptic precautions. The embryos are removed and placed in a sterile, covered dish and covered with Locke's solution. With fresh sterile instruments the embryos are removed from the membranes, and whatever organ is desired to cultivate is removed and transferred to a capsule containing some of the saline culture medium. The organ is cut into coarse pieces and washed in several changes of saline, so as to free it as completely as possible from all traces of blood, which exerts a definitely inhibitory effect on growth. The washed pieces should then be transferred to a sterile capsule, kept moist by a few drops of the salt medium, and cut up with fine knives into small pieces about 1 mm. square.

Culturing.

Sterility is, of course, of the utmost importance in culturing tissues, and although all the operations yet described can be carried out with care in any ordinary laboratory, those now to be described must be performed under cover. For this purpose a metal and

FIG. 3.



Box for putting up cultures with metal table for cover-glasses and rack for slides.

glass case, shown in Fig. 3, will be found very convenient. This case contains a glass rack for the hollow slides used and a metal table for the cover-glass. The whole apparatus is flamed out with a Bunsen and the metal table thoroughly heated. The slides, which are stored in absolute alcohol, are seized with forceps, rapidly flamed, and arranged on the glass rack. Cover-glasses are cleaned with chromic acid mixture and are washed and stored in ether. They are removed one by one with forceps, flamed, and laid on the metal table. In order to culture tissues in the plasma embryo extract medium portions of the tissue are transferred with iridectomy knives to the centre of cover-glasses. With a sterile

FIG. 4.



Amitotic division in cell induced by hypotonic fluid (commencement).

pipette a measured volume of the embryo extract is added to each and then three volumes of the plasma. The mixture is stirred rapidly with the knife, the fragments arranged, and allowed to clot. As soon as clotting has taken place the cover-glass is inverted over a well-slide and sealed up with paraffin. Cultures into the saline embryo extract medium are made in a like manner, except that the saline solution and the embryo extract are mixed first in a separate tube. A drop of the culture fluid is placed on the cover-glass,

Thus very briefly are seen some of the changes as they affect the sacro-iliac joint, though mention should be made of an intermediate stage which D. E. Derry¹¹ has shown to exist, in cases when, in spite of the assumption of the erect attitude, the

transverse process elements occasionally persist. He has described several specimens of ilia with post-auricular facets, one or two in number, in the form of prominences on the ilia, either passing to meet ligamentous attachments on the sacrum, or being actual facets articulating with the first, second, and third sacral vertebral transverse elements. This condition shows a transitional state of affairs between that in the pronograde and orthograde animals, the post-auricular facets being relics of the transverse process contact of the former.

In the maintenance of the erect attitude, the posterior portion of the iliac bones is drawn backwards and downwards by the pull of the gluteus maximus and hamstrings through the sacro-sciatic ligaments; so that a sharp sciatic notch is produced, though here again a sexual difference may be observed, for the female sciatic notch is not so sharply angled as the male. In this way it may be said that the female pelvis contains more of the horizontal pelvic characteristics than the male, in that—

- (a) The sciatic notches are less sharply angled.
- (b) The ilia are longer, less curved, and less backwardly bent.
- (c) The sacral articular surfaces of the sacro-iliac joints represent only 2 to 2½ sacral vertebrae.
- (d) The body-weight being transmitted more through the front part of the first sacral vertebra, the anterior or cranial end of the sacrum tilts more forwards, the posterior or caudal more backwards, producing a movement known as nutation of the sacrum, which is a rotation through the second sacral vertebra.
- (e) The presence of the pre-auricular groove, commoner in women. Derry¹¹ says: "In diarthrodial joints the amount of grooving or constriction of the bones forming that joint for the attachment of ligaments is in direct proportion to the amount of movement thereat—e.g., the head of the femur moving on the fixed acetabulum is the more grooved for capsular attachment, or the condyle of the jaw in the immovable glenoid fossa, similarly."

So with the sacro-iliac joint, the female ilium moves on the more immovable sacrum, and shows a grooving of the bone anteriorly, the so-called pre-auricular groove. Whereas on the male bones, where there is normally next to no movement of ilium on sacrum, owing to the amount of bony interlocking that takes place of both articular surfaces, no such groove is found.

Gross Anatomy.

The sacro-iliac joint is now classed as a diarthrosis, the bony elements being the articular surfaces of the two bones, which are covered with cartilage that looks like hyaline, but proves histologically to be fibro-cartilage, that on the sacrum being the thicker and more fixed. It was not till Goldthwaite and Osgood¹ wrote their paper on these joints that much attention was focussed on them, and even now several textbooks of anatomy have not gone out of their way to correct their old and erroneous statements.

The capsule of the joint is formed by the intrinsic ligaments which are too well known to need mention and is weakest inferiorly. That this is so is shown by the following points:—

1. Disease of the joint most often points this way.
2. In puerperal sepsis a path may be opened into the joint here.
3. Rupture of the joint takes place here, as, for example, after symphysiotomy and other such strains on the pelvic girdle; though a compensatory hypertrophy of the anterior ligaments sometimes takes place, for in cases of absence of the pubic symphysis full activity even to uncomplicated pregnancy has been recorded.
4. Frequent implication of the lumbo-sacral cord in pathological conditions of the joint, the cord being a constant relation of the lower third anteriorly, so that the irritation of it explains the sciatic and other pains so common in lesions of this joint.
5. Naked-eye inspection, when on moving the bones together the capsule is seen here to be thin and stretched; further pouches of synovial membrane bulge out quite readily along the anterior aspect of the joint.
6. From the weak markings of the bones anteriorly.

The synovial cavity, seen best by injection with coloured gelatin either beforehand or during dissection, is considerable in extent, extending posteriorly in small pockets behind the auricular surface the whole of the way down, or being encroached on posteriorly

by the ligamentous fibres that go to form the interosseous ligament. Further, the laxity of it is shown by pressing the bony surfaces together when the membrane is seen to bulge in small pockets along the anterior aspect of the joint. Sections through the joint in a series of pelves, taken in a vertical and oblique direction, between corresponding points, show a definite sexual distinction, the male joint cavity being much more tortuous by reason of the bony interlocking, whereas the female is much less tortuous with very little interlocking, thus permitting greater freedom of movement. This was observed in a series of dissecting-room bodies—where naturally the joints showed considerable cartilage erosion, osteoarthritis, and varying degrees of ankylosis—and further confirmed on post-mortem bodies.

Movements.

1. Careful study shows that the pelvic articulations are fashioned to make movement possible in certain directions, the function of such movement being to lessen jarring and straining. Stability is dependent on the tone and character of muscles and ligaments, and anything interfering with the stability of the pelvis interferes with the use and development of the muscles and ligaments attached.

(a) With regard to the pubic bones, the muscles give no support and the ligaments afford but little strength and stability. Further, as mentioned above, the pubic bones may be absent and full activity even to uncomplicated pregnancy ensue. What movement there is at the pubis, of up and down play, is only possible in so far as there is relaxation and movement at the sacro-iliac joint.

(b) At the sacro-iliac joint movement consists of a tilting of the ilium on the sacrum. Further, because of a double obliquity of the joint surfaces, a moving back of the upper part of the sacrum, which is wedge-shaped with the base of the wedge anterior, increases the antero-posterior diameter of the pelvic brim; also by pushing the ilia laterally, so increases the transverse diameter also. Owing to the "nutation" of the sacrum, increased inlet measurements of necessity coexist with diminished outlet diameters, changes that are produced by the assumption of the so-called Walcher's attitudes.

The first position shows the patient supine with the legs from the hips hanging free over the edge of the table, so producing hyperextension of the hip-joints with extreme tautening of the ilio-femoral ligaments, and also a forward rotation of the ilium on the sacrum so that the sacral promontory lies farther away from the symphysis. This movement is greatly aided by the physiological relaxation of the sacro-iliac joints during pregnancy, so contrasting with the lack of movement in the corresponding joints in the male. In the second position the thighs are sharply flexed on the abdomen, when the inlet measurements are decreased and those of the outlet increased.

It is well known that at the close of pregnancy great hypertrophy of the symphyseal ligaments takes place in the guinea-pig's pelvis, to allow the pubic bones to separate to the relatively wide interval of one inch; further, at the same time a relaxation of the capsule of the sacro-iliac joint occurs, a state of affairs that incapacitates the guinea-pig so much that during the last three weeks before labour she crawls on her abdomen dragging her femora behind her. This happens because the separation of the pubic bones allows the abdominal contents to fall forwards, and owing to the consequent flattening of the ilium, sacrum, and coccyx, as Sir John Bland-Sutton has pointed out, the leverage power of the femora is weakened. After parturition the symphyseal ligaments quickly return to their former state, though the symphysis does not regain its firmness, for in a macerated parous specimen the pubic bones fly apart. It was hoped that from a study of a series of guinea-pigs, pregnant and non-pregnant, before and after labour, some help might be obtained towards the understanding of the similar but less marked relaxation that takes place in the sacro-iliac capsules in human pelves: beyond verifying the condition found by dissection, histological evidence of the gradual hypertrophy and sudden return to normal of the symphyseal ligaments is most disappointing.

2. In this way it is seen that the chief influences that bear on the sacro-iliac joints and their movements are as follows:—

(a) Sex.—The articular interlocking precludes in the male any but a slight movement, whereas in the female the absence of interlocking and the physiological relaxation during menstruation and pregnancy, help to provide a distinct though limited range of movement.

(b) *Certain Unusual Anatomical Extrinsic Influences.*—(1) The post-auricular facets mentioned above; (2) an abnormal lumbo-sacral articulation, in which the fifth lumbar transverse process may articulate either unilaterally or bilaterally, with the ala of the sacrum postero-superiorly, or with the ilium above and behind the auricular surface, a state of affairs that will further restrict the joint movement.

(c) *Conditions Tending Towards the Pathological.*—These conditions, tending in their results toward the pathological—e.g., of occupation—were lucidly described in Sir Arbuthnot Lane's classical paper of 1887 on the skeleton of coal-heavers, bearing out his theory of the crystallisation of lines of force in the direction of stress and strain. Indeed, since the writings of Matthews Duncan and Arbuthnot Lane very little has been added to our knowledge of the mechanics of the bony skeleton.^{12 13}

(d) *Maintenance of the Erect Attitude.*—The body-weight is transmitted vertically down through the first piece of the sacrum, causing a forward nutation of that bone, a movement resisted by (1) the pull of the sacro-sciatic ligaments inferiorly; (2) the posterior sacro-iliac ligaments of great strength, which, working, with the auricular articulating surfaces as a fulcrum, tend to force out either iliac bone, but only bending them out owing to the presence of the symphysis pubis in front; and (3) the upward and inward thrust of the femora. That this is so is shown by the production of the unilaterally deformed Nägele and bilaterally deformed Robert pelvis, brought about respectively when one or both sacro-iliac joints have lesions incapacitating their movements, so that the bones give to the upward and inward thrust of the femora and cave in.

The Commoner Pathological Conditions of Relaxation and Strain.

Relaxation arranges itself under three headings:—

(1) The physiological relaxation associated with menstruation; (2) that associated with pregnancy, being an exaggeration of the normal physiological condition; (3) that due to trauma, general weakness, or some known pathological process in which various conditions predispose to joint trouble, as: (a) faulty postures, for example, standing in a position of extreme lordosis, or sitting with the lumbar curve reversed, as when lounging; (b) in stout persons with visceroprosis, the drag of the abdominal contents increases the lumbar lordosis; (c) the badly-fitting corset, again, increases the lordosis and presses on the iliac crests anteriorly. These conditions cause abnormal joint pressure and so through the stages of serous infiltration, enlargement of the synovial membrane, and separation of the bony surfaces, freer movement is produced in the direction of relaxation.

In Osgood's series only 2 per cent. showed absolute ankylosis of their pelvic joints, but he does not specify the ages of the subjects. Further, mention should be made, in the ætiological consideration of this condition, of rickets, cachexia, constitutional weakness, and functional nerve disorders, occurring most frequently in multiparous women, especially in those with occupations calling for much walking and carrying of weights.

The symptoms of this condition are very variable, ranging from slight pains in the sacro-iliac region to pains throughout the whole pelvis, unsteadiness of gait, and sometimes a complete disability.

Sacro-iliac strain may be of the following types:—

(a) *Subacute*, brought on by stooping. In this movement protection is first given by the contraction of the antagonistic muscles, next strain is instinctively relieved by hyper-extension of the lumbar spine—as will be remembered by those who have experience of long and arduous pulling in a forceps delivery, or in a tug-of-war when a wrong position has been maintained, or by pregnant women wearing too high heels, or, again, by faulty standing, or by lying supine on a hard surface. For example, post-operative backache is often caused by a patient, especially a woman, having been laid on an operating table with no support in the small of her back, so that the æsthetic relaxation of the protective spinal muscles easily brings about such a condition. Milder degrees are often seen after ordinary recumbency, when a good stretch on waking relieves any lumbar pain that may be present.

(b) *Acute*. A patient complains that something has snapped, and of difficulty in holding his body erect, with sharp pain in the lower lumbar region. This pain disappears after a rest, then reappears and becomes worse after 24 hours, when the patient is completely disabled, and the pain which has been at first localised spreads through the whole lumbar region.

(c) *Chronic*, which falls more under the heading of joint relaxation, mentioned previously. In these conditions varying degrees of damage are done to the joint, ranging from a mild trauma to actual stretching and rupture of the ligaments, occasionally with some bony displacement and subluxation.

The symptomatology of sacro-iliac strain and relaxation may be—

1. Subjective:—

Pain may be localised in the joint, or owing to the proximity of the lumbo-sacral cord it may be referred to the leg or foot. It is increased by movements that affect the joint, but not by pressure along the nerves. Generally unilateral, the pain is worse at night owing to dorsal recumbency, and is relieved by changes of position—e.g., from the dorsal to the lateral. By day in some cases it may not be present unless the joints are strained by sitting, standing, stair-climbing, or stooping. Further, in women the pain is worse at menstruation.

2. Objective, found on clinical examination:—

(a) *Abnormal Mobility.*—This is observed in cases of joint relaxation (1) by forced hyperextension of the thighs one at a time, so moving the ilium on the sacrum; (2) again, with the patient standing and the observer holding one hand on the sacrum and the other on the pubis, if the patient now raises first one knee and then the other, abnormal mobility can be noted; (3) with the thumbs on the sacrum and the fingers on the crest of the ilia, when the patient is asked to raise her legs one at a time, abnormal mobility is found: for this test the patient is best placed sitting on a chair; (4) with the patient lying on her back and raising first one leg and then the other, extra mobility is elicited by the observer laying his hands flat on the sacrum.

(b) *Certain Abnormal Attitudes and Postures.*—As for example on standing, the body is inclined to the opposite side. On rising from the sitting posture the spine is held rigid and the hands are used for support. On stooping, flexion of the spine is avoided. On walking, in acute cases, the steps taken are short to avoid spasm of the hamstrings, and in chronic cases the gait may become rolling or waddling. On sitting the patient does so on the sound side to avoid the pain from using the diseased buttock.

(c) *Limitation of Movement.*—In movement of the body on the thighs, seen in forward, backward, and lateral bending; so that in extreme cases the last-named may be so curtailed that the body is drawn forwards, and the erect attitude avoided.

In this way the objective symptoms are seen to be abnormal mobility, abnormal attitudes and postures, and abnormal limitation of movements. Albee's symptom-complex⁵ of sacro-iliac disturbance is as follows:—

1. Pain in the region of the affected joint on turning over when in the recumbent position.
2. Discomfort when lying on the back.
3. Pain when sitting on the affected buttock, relieved on changing to the opposite side.
4. Pain in the affected joint on forward bending.
5. Pain on deep pressure over the affected joint.
6. Listing of the whole spine to the side opposite the lesion.
7. Goldthwait's symptom, which is that pain is referred to the joint or to the leg of the affected side, when the thigh is flexed and the leg extended.

Finally, the danger of diagnosing over frequently sacro-iliac disturbance must be constantly kept in mind; for in a joint so difficult of access, diagnosis is very hard to confirm. As Payne⁸ has said, great care must be taken to exclude other conditions before giving the sacro-iliac joint the blame for the manifold forms of lumbar discomfort and backache.

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Bibliography.

1. Goldthwait and Osgood: Boston M. and S. Jour., May, 1905.
2. Goldthwait: Jour. Am. M. Assn., 1907, xlix., 768.
3. Goldthwait: Boston M. and S. Jour., March 16th, 1911.
4. Albee: Jour. Am. M. Assn., Oct. 16th, 1909.
5. Albee: Orthopaedic and Reconstruction Surgery, 1919.
6. Corley: Am. Jour. Obst., N.Y., 1915, 595.
7. Oppenheimer: Internat. Jour. Surg., N.Y., 1915, 258.
8. Payne: Am. Jour. Surg., N.Y., 1912, 400.
9. Goldthwait: Boston M. and S. Jour., 1913, 128.
10. Zacharie: Am. Jour. Surg., N.Y., 1913, 391.
11. Derry, D. E.: Brit. Jour. Anat., April, 1911, 202.
12. Arbuthnot Lane: Various publications, including Jour. Anat. Phys., 1886.
13. Matthews Duncan: Researches in Obstetrics, &c., 1868.

OBSERVATIONS ON PEPTONE IMMUNISATION IN ASTHMA AND OTHER ALLERGIES.

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"PEPTONE" in this article represents the mixture of proteoses and peptones produced by digestion of protein. It is present practically constantly in the stomach or intestines. In the small intestine the proteoses, peptones, and polypeptides are resolved into amino-acids, which alone are admitted into the portal blood and are capable of detection by vividiffusion and other methods. No trace of peptone is discoverable in the portal blood, even after a heavy protein meal, and this is not surprising when it is considered that even such a minute quantity as 0.01 g., intravenously introduced, produces poisonous symptoms. Those amino-acids which pass the liver are quickly taken up by the tissue cells, and selected as building material for their own albumins. The cell also katalyses its albumin to amino-acids, some of which are distributed by the blood to other tissues which may require them, such as the vital organs in cases of starvation, while others are excreted as waste matter. This katabolism is effected, just as in alimentary digestion, by two ferments; one pepsin-like, acting in acid medium producing the peptones and the other, erepsin-like, attacking the peptones in an alkaline medium to produce the amino-acids.

These remarks are rendered necessary in view of the assumption, still occasionally made, that peptone passes through the intestinal wall into the blood. Thus Widal, Abrami, and Lancovescio¹ have advanced this hypothesis on the ground that the "*crise hæmoclasiq*ue" followed an Eck fistula, thus demonstrating that proteoses and peptones must have been present in the portal blood. Normally, they think these bodies are "fixed" by the liver, but if the liver is out of order, they are passed into the general circulation thus producing the "hæmoclasia"—an unfortunate expression, by the way, as it really means disruption of the red corpuscles, whereas the only constant effect of the phenomenon is a leucopenia. The fallacies underlying such a view are obvious enough. The portal blood may contain many substances, quite apart from peptone, capable of inducing the "*crise*," such as amines, which are normally transformed in the liver. According to van Leeuwen,² the so-called hæmoclastic crisis is a very ordinary affair which can be induced by all sorts of ingested substances, even carbohydrates. Zehnter³ has recently adversely criticised the phenomenon as a sign of hepatic insufficiency, his results mainly contradicting it. If proteoses were circulating in Eck fistula dogs they would give the well-known reactions, whereas the animals either show no particular symptoms or else a state of excitement.

"Digestive" Anaphylaxis.

Here brief consideration may be given to another phenomenon, that of "digestive anaphylaxis" treated either by minute oral doses of the offending substance, or by the ingestion of 0.5 g. peptone an hour before meals on the empty stomach (Pagniez⁴ and Vallery-Radot, Widal, Fatou⁵). It is affirmed that peptone so taken prevents the symptoms not only of indigestion, such as flatulence, somnolence, arrhythmia, and facial erythema (Fatou), but also urticaria, migraine, or asthma which may be excited by the digestive disturbance. This purely local action of peptone lasts for about three hours, and the dose must be repeated before the next meal. Now in view of what has previously been stated as to the abundance of peptone normally present in the stomach or alimentary canal, this method of treatment certainly looks like carrying coal to Newcastle. But the observations of Pavlov⁶ have supplied the likely explanation. He showed that the chemical excitant of the gastric juice—the

excitant of the hormone (gastrin)—was a constituent of the digestion of flesh. No other substance was capable of so acting though water had a slight effect. This constituent Pavlov found in peptone, especially a pure peptone such as Chapoteau's, as apart from proteose, so that when given before meals it creates a secretion of juice sufficient to protect the sensitive mucous membrane from the offending substance, and which in turn is more effectively digested. Extract of meat concentrated in a slowly dissolving medium is alleged by Pavlov to have an even more decided effect in producing the secretion, so that if given under similar conditions the results would doubtless be at any rate quite equal to those of peptone. Given during digestion also the hormone effect would doubtless ensue.

Immunisation by Peptone.

Immunisation by small increasing injections of peptone, avoiding apparent reaction, was based on experimental results of two kinds.⁷ In one set it was shown by Dale that when an animal was sensitised, say to three antigens, desensitisation to all three might be effected by one of the antigens. Obviously, therefore, there were no chemoreceptors and two of the desensitisations were non-specific. Dale also found that in the case of an animal immunised to a particular serum, a strip of the uterine muscle was nevertheless sensitive not only to the homologous serum, but also to a heterologous one, either of which also desensitised to itself. The other set of experiments by Biedl and Kraus, Weil, and others showed that peptone poisoning produced in non-sensitised animals the distinctive symptoms and lesions produced by the exciting dose of the antigen in the corresponding sensitised animals. As the symptoms were always identical in the same species, no matter what the antigen, the poison is evidently non-specific; hence the power of one antigen to desensitise to several. This poison also is either contained in the peptone itself or else is produced by its reaction with the fluids and tissues of the body. Hence it might be inferred that treatment with peptone would produce in the blood a protective substance against this poison from whatever source.

Although we hear of "rival" theories of anaphylaxis—the humoral and the cellular—all the available evidence points to the correctness of Bordet's⁸ view that both humoral and cellular factors can indisputably be proved, and any attempt to exclude one in favour of the other is bound to fail. The protein poison or anaphylatoxin is easily made by digesting normal serum with certain substances, as, for instance, agar, and as all the agar is recoverable, it is clear that the matrix of the poison is in the serum itself. When injected into the blood, anaphylatoxin quickly produces the symptoms of the anaphylactic shock; and the agar sol itself also, when injected in small quantity into the blood, produces identical symptoms. According to Bordet the agar acts by adsorbing some constituent from the serum which leaves it in a poisonous condition—i.e., containing anaphylatoxin. In anaphylactic shock, the antigen-antibody complex in like manner adsorbs this constituent from the blood or the cellular elements of the tissues. When immunisation or desensitisation is effected, a substance is produced which protects against the further action of the anaphylatoxin. We may call this substance anti-anaphylatoxin.

Cellular Reaction in Anaphylaxis.

Great importance was attributed by Weil to the cellular reaction in anaphylaxis, and he devised many ingenious experiments proving his contention. Dale further elaborated this point, and has consistently endeavoured to fortify the view that the shock is exclusively a cellular phenomenon, which, though imitated by the anaphylatoxin shock, is nevertheless of a different order. He believes, with Weil, that the antibody is precipitin which on uniting with the antigen produces a precipitate on or in the tissue cells, the resulting "colloidal disturbance" (aggregation)

sufficing to cause the shock, without the production of any particular poison. The somewhat paradoxical position is also maintained that when precipitin is present in considerable amount in the blood, it neutralises the antigen quietly, so preventing its access to the precipitin in the cells. When the circulating antibodies are reduced below a certain amount by their migration to the cells, shock occurs. Dale and Kellaway,⁹ however, working with starch, agar (non-protein substances) and agar anaphylatoxin, obtained some very puzzling results. They found that the chief difference in guinea-pigs between anaphylactic shock and anaphylatoxin shock by starch anaphylatoxin or agar sol related to the condition of the blood platelets as regards numbers, aggregation, &c. But when starch anaphylatoxin or agar was injected into the sensitised guinea-pig, it reacted much more sharply than the normal pig, and the resultant shock was in no way distinguishable from specific shock. Now these results would seem to indicate that the discrepancies as regards the blood platelets, &c., were dependent on the degree to which the blood and cells respectively reacted and not to a difference in kind, as in the sensitised animal the cells have undergone a long preparation.

Precipitin Probably not the True Antibody in Anaphylactic Shock.

The practically constant occurrence of precipitin as one of the antibodies in infectious and other antigenic conditions, and its subsidiary rôle in the immunity process, render it improbable that it should form the true antibody in such a highly specialised syndrome as the anaphylactic shock. Weil,¹⁰ for instance, found that the immune animal often contained an amount of circulating precipitin far too small to explain its immunity, and on the other hand, antigen might be present in the circulation together with large amounts of precipitin. Also the anaphylactic antibody does not react with antigen according to the laws of chemical combination, as after partial neutralisation of the antibody, the effective dose of antigen necessary to produce shock is enormously greater than that required by untreated antibody. It is difficult to reconcile this behaviour with the idea of a precipitate. Dale and Kellaway emphasise the fact that in the uterine muscle test, when precipitin is added to the bath, the response to the antigen is inhibited, and also that with anaphylatoxin the response is feeble, except possibly with agar anaphylatoxin. But Weil found that when excess antigen was added to the bath the response was inhibited, and we should hardly expect adventitious anaphylatoxin to produce an effect equal to that resulting from its generation within the cell itself. We also know that the uterine contraction has nothing specific about it, as it is given by histamine, &c., and it varies greatly in relation to the species of animal used, the dosage, ionisation, &c.

The above experiments were confined to guinea-pigs, but in recent experiments by Longcope¹¹ on the white rat it was impossible to produce anaphylactic shock. Neither uterine nor skin reactions were obtainable, nor could guinea-pigs be passively sensitised with the serum. Yet the rats formed abundance of precipitin and the antigen disappeared from the blood when the precipitins had reached their greatest concentration. The rats, however, reacted typically to peptone (anaphylatoxin). Longcope concludes that in this case the anaphylactic antibody cannot be precipitin.

Experiments with Peptone.

In 1921 Dale and Kellaway tried the effect of moderate doses (0.1 g.) of Witte's peptone intravenously in passively sensitised guinea-pigs, and obtained a definite protection against specific shock (unpublished). Dale suggested that the peptone might act by displacing the antibodies from the tissue cells into the blood, thus inhibiting the shock by neutralising the antigen in accordance with his views. But quite recently Kellaway,¹² in some very important experiments, found precisely the opposite to occur. Using

actively sensitised guinea-pigs, he first tried them with fairly large doses intravenously of normal guinea-pig's serum, and found that the antibodies rapidly began to disappear from the blood, and very soon afterwards they began to disappear from the cells as well. In about two hours the antibodies had completely disappeared from both blood and cells when the animal was entirely refractory to the antigen. In two hours more the antibodies had practically all been restored to the cells, but it was over 20 hours before they were restored to the blood, during which interval the sensitiveness had returned. So far, therefore, the "cellular" theory was in evidence. (It may be as well to mention that "disappearance" here simply means lack of response and not that the antibody necessarily migrated or was destroyed.) Kellaway next tried Armour's peptone (No. 2)* in doses of 0.1 to 0.15 g. intravenously, and found it conferred a high degree of protection, the animals withstanding two or three lethal doses of the antigen. But the action of the peptone was entirely different from that of the serum. It reduced the circulating antibodies to about one-third, while it left the cellular antibody entirely untouched. This is a very remarkable result, and proves that the peptone endowed the body with a protective substance or quality and the inference is certainly justified that the protection was directed against the anaphylactic poison generated by the antigen-antibody complex) by the production of anti-anaphylatoxin. As regards the effect of normal serum, it is interesting to note that in poisoning by anaphylatoxin, Novy¹³ and De Kruijff on injecting normal serum also found a protective effect.

Colloidal Disturbance.

While the existence of anaphylatoxin is capable of direct proof, the purely physical factor of a colloidal disturbance and its supposed effects pertain to the realm of theory. What do we know of the behaviour of the colloids? The French call this disturbance of the colloidal equilibrium "colloïdoclasia," a term which does duty very much after the manner of the blessed word "Mesopotamia." The conceptions which have prevailed as to the special behaviour of colloids as apart from crystalloids have recently been subjected to very drastic treatment in a remarkable work by Loeb,¹⁴ which, on account of its importance and the attention it is receiving, may be briefly mentioned. Loeb endeavours to prove that proteins form ionisable salts with acids and alkalies according to the stoichiometrical laws of crystalloid chemistry.† Protein being amphoteric, it behaves as a base when the H-ion concentration of the solution is above a certain value and as an acid when below that value, while at the critical value, the protein is at the iso-electric point and remains practically non-ionised. With the proof of this, the entire colloidal behaviour of protein solutions as to osmotic pressure, electric charges, &c., is solved on the Donnan principle of membrane equilibria, so-called from its discovery, thermodynamically, in 1911 by Prof. F. G. Donnan, F.R.S., of University College, London. That is, when a membrane separates two solutions of electrolytes and the solution on one side contains an ion (in this case a protein ion) which cannot diffuse through the membrane, the final result will be an unequal distribution of the diffusible ions, so giving rise to potential differences and osmotic forces, and also, in the case of gel particles, to variation of swelling, as first suggested on the basis of the Donnan equilibrium by Procter. If now we accept the further view of Loeb that the colloidal particles or micellæ of a protein colloidal solution can be treated or regarded as very small gel particles out of which protein ions cannot diffuse, but into which crystalline ions can, then it follows that the size and surface electric charge, and therefore also the stability—that is, the tendency to remain dispersed or to aggregate—of the protein colloidal particles will be determined by the unequal distribution of the ions

* At the writer's suggestion.

† Dixon Mann in 1902 contended that proteins behaved like electrolytes (Physiol. Histol., p. 48).

previously referred to. There seems little doubt that the hard-and-fast line between colloids and electrolytes has been to a certain extent removed by Loeb's observations and proofs, and that "colloidal disturbance" involves equally important electrolytic factors. If colloidal disturbances were alone sufficient to cause violent poisoning effects, we should expect these effects to be much more frequent in the course of most diseases.

The Allergic State.

The basal fact in allergy or sensitisation is an innate defect or disposition of the tissues concerned, expressed as an abnormal reactivity. This disposition is transmitted; even though appearing late in life there is no sure ground for believing that it is acquired. Thus, one groom in 1000 may ultimately become horse-sensitive, or one baker in 1000 wheat-sensitive, because an inherent dormant disposition has been activated. Once activated, this labile state of the tissues tends to increase; nor could the permanent removal of the exciting factors ever abolish it, though in young persons the sensitisation may weaken as growth proceeds. In such, the skin reactions may be seen to lessen year by year, and the general symptoms may abate or cease, at least for a time. Some weighty considerations regarding the unlikelihood of sensitisation being acquired are presented by Rolleston.¹⁶

In the allergies—hay fever, asthma, migraine, epilepsy, urticaria and other skin conditions—it is hardly correct to say that the patient is, or has become, sensitised by a "foreign" protein inhaled, ingested, or autogenous, as the sensitisation is already present naturally and may to some extent be compared to the zymogen in a cell which remains inactive till the appropriate excitant reaches it. In a sense, the foreign substance may be said to sensitise, but activation or excitation are the more correct expressions. This is further borne out by the fact that when a cell is naturally sensitised, it can, as a rule, be activated by many different substances, both antigenic and non-antigenic.

Some American observers consider that, as in allergy, the effect of partial neutralisation of antibody is not in evidence, and also, that as complete desensitisation with repeated doses of antigen, as in artificial anaphylaxis, does not take place, the reaction cannot be due to antibodies in the cells. But it is legitimate to consider that if the antibody is autogenous, its quick replacement might occur, and the antigen might even stimulate its production. Besides, many observers have reported passive sensitisation with the serum of allergic subjects. On the other hand, in multi-sensitisation it is difficult to believe that the cells contain separate natural antibodies for each protein. The fact that many non-protein substances (histamine, drugs, &c.) may give skin reactions which superficially are indistinguishable from those produced by proteins, further complicates the issues. In certain other conditions, such as dermatitis venenata, the irritant seems to exert its action solely on the skin, and the reaction seems to increase with successive exposures to the irritant, and as age advances. Conflicting statements have been made as to the exhaustibility of the dermal reaction as between proteins and non-proteins (Mackenzie and Baldwin,¹⁶ Cooke¹⁷). Apparently the common factor, as in anaphylactic reactions generally, is a non-specific poison affecting the capillary endothelium, which varies in intensity according to the nature of the irritant, the reactivity of the skin, and the modifying conditions dependent on the presence or absence of a more or less general sensitisation.

The enormous output of American work on the skin tests within recent years has gone to show that reactions to pollens and the animal epithelia are fairly reliable indicators of a sensitiveness which is more or less general, but that as regards foods, there is no rule in the readings. Multi-sensitisation nearly always occurs, to proteins in entirely different groups. It is evident that the entire substance as used in the test may be so altered by the digestive juices as to

render it innocuous; while, on the other hand, the skin test may be negative and yet constitutional symptoms are produced on ingestion. Out of 939 cases investigated by Rackemann,¹⁸ in only 13 were food tests important or of use in treatment, and in only a very small number, chiefly in children, was benefit derived by withdrawing the particular food from the diet. Apparently in some cases, the food allergen may be absorbed by the mouth. According to the tables of Baker¹⁹ and of Peshkin and Rost,²⁰ at least 10 per cent. of normal children give dermal reactions to proteins. Possibly in the majority of these the hypersensitiveness is limited to the skin.

It is commonly believed that in cases traceable to foods the ingested protein must pass unchanged through the intestinal wall. Excepting possibly the case of infants with disordered digestion, there is no proof of such a leakage, nor is it a necessary assumption since (as in the case of the sensitised animal) activation is possible with all sorts of substances. Thus, an asthmatic attack can often be induced by such substances as peptone or histamine. Is it not possible that the symptoms may be produced by a constituent or disturbance of the food which acts similarly to an urticaria-producing drug? Why should the leak admit one protein only? It has even been asserted (Shannon²¹) that the sucking child may suffer from the effects of a protein which the mother has taken in excess, and which has found its way into the breast-milk, and that guinea-pigs sensitised to the fed protein will react anaphylactically to the milk as compared with normal controls. Now, in the first place, physiology teaches that the transformation of food protein into milk protein is governed by the same laws as apply to growth, the milk protein being built up of amino-acids (McCollum²²). In the next place it has been shown by Hartwell²³ that an excess protein diet in the nursing rat causes a poisonous state of the milk, producing spasms and often death in the young. However this poisonous quality is acquired, it might cause anaphylactoid symptoms in the sensitised animals. In any case the controls in experiments with milk ought to be animals sensitised to a different protein than that fed to the mother, as doubtless they would react to the milk injection in the same manner.†

It is a curious circumstance that the more severe cases of asthma, at least in adults, very rarely give dermal reactions, while the great majority of asthmatic adults are also negative. Also, as in any case dermal reagents form but a fraction of the possible excitants (of the attack), we must regard the excitants as being mainly autogenous, some metabolic product, either faulty in itself, or inadequately reduced. This is occasionally in evidence as the poisonous products resulting from endocrine and ovarian disturbances which appear competent to induce epileptiform attacks, asthma, and migraine; cures having been effected by the administration of thyroid, ovarian substance, &c. (Asche,²⁴ Ross,²⁵ and others). Some curious examples of auto-excitation are recorded by Whitfield.²⁶ Amongst the allergies, it is particularly noticeable in asthma that great variations are encountered in respect of the reactivity to proteins, the symptoms, course, and the results of treatment. We must regard these variations as mainly due to individual peculiarities. This was even found in guinea-pig experiments with peptone by Novy and De Kruif, a dose which was fatal to some animals being without effect in others, while the coagulation-time, blood pressure, &c., showed great variations "due to inherent or developed factors in the given individual."

The Treatment: With Illustrative Cases.

In the clinical examination special attention is needed to the teeth, nasal cavities, tonsils, or other possible sources of infection; to the state of the lungs, the circulation, and digestion; to the presence of the rheumatic or gouty diathesis; and to endocrine defect. Great difficulty is sometimes encountered with nasal

† Since this was written Shannon's results have been directly challenged in experiments by Stuart (Amer. Jour. Child. Dis., 1923, vol. xxv., No. 2, p. 135).

affections, disease of turbinals, polypi, &c., as operations are sometimes inimical or make the asthma worse. It is better to treat cases urgently requiring such at first, and then to wait some time before beginning the immunisation. As a rule such nasal treatment does not benefit either asthma or hay fever. The skin tests may give valuable information. The patient usually knows what things to avoid; in other cases he does not, but, as by the peptone treatment the sensitiveness to them can usually be overcome, it is often unnecessary to insist on their avoidance, particularly ordinary articles of diet. During the treatment the diet should be plain, very moderate, and diuresis encouraged by drinking water or soda water.

In cases where dermal reactions to proteins are given the peptone acts more rapidly and often more effectually. It is a curious circumstance that after the constitutional symptoms have subsided, these reactions persist. This peculiarity is confined to the skin. Otherwise, the desensitising effect of peptone is universal, and includes bacterial intoxication. Dr. Warren Crowe, of Harrogate, has informed me that in certain rheumatic subjects extremely sensitive to bacterial vaccines, a preliminary course of peptone renders them tolerant. The sensitiveness produced by bacterial intoxication has recently been well elucidated by Pratt-Johnson.²⁷ Asthmatic subjects are often highly sensitive to vaccines, including tuberculin, and the symptoms may be greatly intensified by them. This is due to the abnormal reactivity which the sensitised individual exhibits to protein poisons in general. The experience of van Leeuwen² with tuberculin is a case in point, and does not necessarily imply a special sensitiveness to that particular substance. When a specific organism is definitely producing the toxic protein causing the asthma, either directly or indirectly, treatment with the organism should succeed. But such cases are few, and in general vaccines act non-specifically. Dr. Rackemann, who has had a very extensive experience with them, particularly the autogenous variety, tells me that he is compelled to regard their action as non-specific. Experiments are needed to assist in elucidating the matter. The more one sees of asthma, the less one connects it with bacteria.

The Armour peptone, which gave such good experimental results, has for a long time been recommended by the writer for general clinical use, as its proteose content is adequate and it is free from histamine and non-irritant. Most other peptones are deficient in proteoses. Witte's peptone contains histamine and its proteoses are rather toxic. Hence, though very valuable in certain circumstances and cases, it must be employed with great caution. It can be detoxified, however, by a simple process, and yields a useful product which shall shortly be alluded to. Peptones made from vegetable proteins are also valuable aids in certain cases. The peptone solution should always be given either intravenously or intramuscularly, the latter method being appropriate in children and weak elderly persons. The hypodermic method is not only less efficacious, but is open to the fatal objection that it is impossible to adjust the dosage. Only by the intravenous method can such be done, or accurate reactions (if desired) obtained. Intramuscular injections often succeed when given by rule of thumb, but if the case is not satisfactorily responding, the intravenous method should be substituted.

Some illustrations of the treatment may now be given, it being understood that the Armour peptone has been used, unless otherwise stated. A 5 per cent. solution in physiologic saline is used for intravenous use, and a 7.5 per cent. solution for intramuscular use. They must be very carefully prepared and sterilised by heating up to 60°-65° C. and then made faintly alkaline by soda or borax, the latter acting also as a preservative; otherwise 0.5 per cent. phenol is used. The injection is given slowly to avoid reactions, and it is never given during the attacks. Dosage 0.3 c.cm., increasing by 0.2 c.cm. up to 1.5 c.cm. or over.

CASE 1.—Male aged 14. Asthma since 18 months old. Has also had eczema and symptoms of hay fever from time to time. Father, paternal grandmother, and an aunt had asthma; a sister also has asthma. The attacks last a few days, then there is more or less freedom for a week or two, except at nights. Turbinals cauterised four years ago without benefit to the asthma. Is horse-sensitive, and gets violently sick on eating a soft-boiled egg, but can eat one hard-boiled. Is otherwise healthy and well grown. His dermal reactions gave horse-hair 1.5 cm.; egg 1 cm., egg-peptone negative; pollen negative. He got 11 intravenous injections of peptone, beginning with 0.3 c.cm. and increasing by 0.2 c.cm. twice a week up to 1.5 c.cm., no constitutional reactions being produced. The asthma ceased after the fifth injection, and no relapse occurred. In eight months he reported himself quite well, but the skin tests remained though less marked. Then after ten months he reported; he had remained perfectly well and found some time ago that he could eat soft eggs with impunity. The dermal reaction at this time to egg was still 0.7 cm., and irregular; horse-hair 1.3 cm. with spikes; no asthma on proximity to horses.

This case is typical of many, especially in young persons, in which peptone acts as specifically as anything in medicine (in the therapeutic sense) and that whether skin reactions be present or not. Children giving reactions to cat hair, rabbit hair, and feathers have been desensitised without removing the animals; in other cases when the animals were removed, the asthma was unaffected but yielded to the peptone. Ratner²⁸ in eight cases of rabbit sensitiveness found that rabbit hair extract in every dilution aggravated the symptoms, instead of desensitising. Note in the above case that when the mucosa of the stomach could tolerate soft-boiled eggs, yet the skin reaction persisted.

CASE 2.—Female aged 28. About six years ago she went to Johannesburg where the dust apparently brought on sneezing attacks. Several of her nearest relatives suffered from hay fever and asthma. Returning home she underwent several operations on the nose in 1918 at the hands of Sir StClair Thomson without much relief to the symptoms. In the autumn of 1921 the sneezing attacks were so violent and prolonged, continuing for hours, that her condition became alarming. Skin tests negative. She received 15 peptone injections intramuscularly from her own doctor and since then the attacks have entirely ceased.

Whatever the irritant which inaugurated the sneezing attacks the sensitiveness was constitutional and doubtless reacted to various inhalants. Hay fever cases often do extremely well on peptone often when given intramuscularly; nor need it always be given in advance, as the active symptoms yield.

CASE 3.—Female aged 45. Severe attacks of migraine since 14 years. Father had asthma; mother had migraine. The attacks come once a fortnight or once a month, practically always at the menstrual periods. First headache, soon followed by violent sickness for 24 hours. When the sickness ceases the pain locates itself on a small area in the left temple and goes on another 24 hours. Otherwise strong and healthy. Diet has no influence on the attacks. In this case the injections were given weekly. The first effect (after three injections) was to abolish the sickness and the pain shifted to the right temple, quite a new experience. Then a month elapsed without any attack. She had occasional headaches of a neuralgic character during the next two months, but nothing compared with her former previous life of martyrdom. She received 12 injections without the production of any reaction. Her condition remains highly satisfactory.

Migraine is common in women, especially at or near the menses, but also intermenstrual attacks occur. The treatment may stop them at least for a time or it may only stop the intermenstrual attacks. Absence of worry and an easy open-air life are invaluable aids to a cure. Certain cases of epilepsy also respond extremely well to the peptone injections.

CASE 4.—Male aged 55. Three years ago catarrh and suffocative spasms severe in character came on during the night, with profuse glairy expectoration. For a time he was confined to bed. Latterly the attacks came by day as well, rendering him practically an invalid. He had had the best medical advice and many remedies had been tried but to no success. Adrenalin was without any effect. He was recommended by Dr. F. Heasman, of Boscombe, for the peptone treatment. After the first injection he had good nights, and after the second the asthma had entirely

vanished. He received 12 injections in all as a precautionary measure, no reaction being produced by any of them. Some time afterwards he had some nocturnal wheezing but not such as to necessitate further treatment.

Although the treatment acts very promptly in many cases, it is not often that it does so in such a dramatic fashion as in this case; so as a set-off to it, take the following:—

CASE 5.—Female aged 36. Anæmic, emaciated, and fragile. Maternal grandfather and mother were asthmatic. She gave the following in her personal history: Typhoid at 14; peritonitis at 19; pelvic cellulitis at 32; influenza in 1919. Asthma began in August, 1920, along with symptoms of hay fever: getting worse. At present the attacks are most violent and frequent, daily and nightly. The chest was not emphysematous, but rhonchi were present. No hay fever symptoms. Skin slightly positive to pollen. The sputum contained many mucous casts of the bronchioles, including spirals, myriads of eosinophiles, and granules, and a long-chain streptococcus. The treatment was carried out intravenously by her doctor in the usual graded doses at first. She was sensitive and gave some marked reactions to the peptone. After two months there was practically no improvement. She was then tried with a compound peptone—that is, one composed of animal and vegetable peptones, and an improvement definitely set in, some weight being gained also. This improvement only lasted six weeks, and the attacks returned as bad as ever. She then had some streptococcus vaccine, but without any benefit.

Here was asthma of a very "malignant" type, and the feeble condition of the patient gave it full rein. The sensitiveness to peptone is hardly surprising, and for such cases a useful preparation to begin with is detoxified Witte's peptone. This is made by agitating the peptone with excess of 97 per cent. alcohol for a minute or two which extracts the histamine and the more toxic moiety of the proteose. After filtration the non-toxic proteose residue is dried and dissolved. This solution can be given intravenously in large quantity without producing reaction, and possesses undoubted desensitising properties. Note in this case that with a marked family predisposition the asthma did not develop until the age of 35. Also the absence of emphysema is noteworthy. The most violent attacks of asthma occur in non-emphysematous subjects, and is related to the fact that in emphysema the air tubes are distended and have largely lost their elasticity, and so the dead space is more capacious and free.

A case resistant to peptone is not always a severe one. In two patients (unrelated) who resided near each other in the same town asthmatic attacks of a moderate character were very troublesome at night. Both patients were quite free of asthma in London, and usually also if away from home. Nevertheless the most careful treatment by peptone failed to remove the nocturnal attacks when they returned home. Some undiscoverable local conditions were at work evidently producing an atypical disorder.

CASE 6.—Female aged 40. "Chesty" since 11. Asthma since 25 off and on. Father, a sister, and a brother asthmatic. Has been getting steadily worse since 1917, and for the past two years is laid up for three to five weeks three or four times annually with "terrific" attacks. Adrenalin makes the symptoms worse and narcotics have to be employed to an extent rather alarming to her medical advisers. These and the strain of the attacks had reduced her to pretty much of a wreck. Some time previously she had been tested for proteins, &c., and received from a physician a vaccine which immediately on use brought on the asthma very severely and so had to be abandoned. She was wasted and haggard-looking. After the first few injections, they were continued by her doctor, and after nine or ten (1.3 c.cm.) there was a slight yet definite all-round improvement noticeable by her friends and relations. The treatment was persevered in, but latterly began to upset her, even in moderate doses, causing headache, severe pains in the limbs, and some rise of temperature. The dose had to be gradually reduced to about 0.5 c.cm. and the compound peptone was substituted for the ordinary. Her sensitiveness to the peptone increased so that she reacted to 0.3–0.4 c.cm. even when diluted with saline, and her doctor who carried out the treatment with the greatest care had considerable difficulty in adjusting the dosage. Nevertheless, a great improvement was steadily

going on; and the asthma had practically ceased, while the general health was being restored. The treatment was continued by five- to eight-day inoculations for several months. Eighteen months have elapsed, and the patient remains well and is delighted to be able to take country rides on horseback.

When peptone is administered over a very long period, it is usually better tolerated, at least for a time, but a few cases get hypersensitive, which, however, is not a drawback. Note in this case may also be made of the severe pains following the injections. These are often encountered in rheumatic or gouty subjects owing to the increased katabolism which peptone produces. In one case, in addition to severe body pains, a number of subcutaneous nodules appeared over the scalp.

CASES 7 and 8.—These may be taken in conjunction, as they illustrate certain features in common, particularly the successful result of prolonged treatment, and the tolerance of large doses. Male, aged 44, had suffered from asthma for eight years. Mother was asthmatic. Attacks occurred almost nightly and it was brought on by any exertion during the day. He was also subject to attacks of bronchitis attended with much expectoration, but he did not connect these specially with the asthma. His doctor had given him autogenous vaccine prophylactically, apparently with benefit. Health otherwise very good. He was free of bronchitis but suffering from asthma when the peptone treatment was begun. After nine injections the asthma had practically gone, when unfortunately he had a severe bronchitic attack which laid him up for several weeks. The asthma also gradually developed and had become as bad as ever when the bronchitic attack was over. The peptone treatment was resumed, and given every four days and then weekly for three months, the dosage rising to 3 c.cm. without producing any reaction, apart from the slight leucocytosis which always follows. During this time, the asthma had entirely gone, and for the past seven months he has been quite free from symptoms.

The other case, female, aged 55, had also suffered for eight years. Very severe attacks every three or four weeks lasting two to three days; adrenalin gives relief for a few hours, then the attack recommences. Family history negative. Never quite free between the attacks. Treatment by peptone was begun, but during the fourth week an attack supervened as usual. When quite better the treatment was recommenced with small doses, and the dosage gradually worked up to 3–4 c.cm. so as to produce a mild reaction, giving a rise of temperature after a few hours of about 1.4° F. These latter doses were given weekly, and the peptone was combined with either a small quantity of Witte's peptone or else a peptone made from wheat of rather an active character. During the four months she was under treatment, there was only one slight attack of asthma. Six months afterwards she wrote stating that she remained perfectly well.

In these two cases the prolonged treatment ultimately subdued the asthma, and large doses were tolerated. Sometimes in men one finds temporary sexual disability under these conditions. The reactions were produced in Case 8, as elderly and stubborn cases often need a fillip. In general, also, if after a number of non-reactive doses, improvement is unsatisfactory, mild reactions must be induced when a rapid improvement may ensue. When, as in this case, an attack occurs during the treatment, one must wait until recovery is complete, and then begin again with a very small dose, as the result of the attack is to produce the protective substance, anti-anaphylatoxin. Anti-anaphylatoxin is also produced by a single big dose of peptone, but the protection is fleeting. On the other hand, the gradual immunisation by small doses creates in addition that disorientation of the sensitised tissues towards the exciting agents which renders their attacks abortive for a longer or shorter time, according to the nature of the case.

References.

1. Widal and others: *La Presse Méd.*, 1920, xxviii., 893.
2. van Leeuwen: *Jour. Exp. Méd.*, October, 1922, p. 415; *THE LANCET*, 1921, ii., 1366.
3. Zehnter: *Paris Médical*, 1922, xxxix., 281.
4. Pagniez and others: *Ann. de Méd.*, 1920, viii., 303.
5. Fatou: *Bull. Méd.*, Paris, 1922, xxxvi., 40, pp. 780 and 783.
6. Pavlov: *The Work of the Digestive Glands* (Thompson's Trans.), 1902, 96.
7. Auld: *Brit. Med. Jour.*, 1917, i., 580.
8. Bordet: *Johns Hopkins Hosp. Bull.*, 1922, xxxii., 269.

9. Dale and Kellaway: Phil. Trans. Roy. Soc., 1922, Series B, cexi., pp. 273-315.
10. Weil: Jour. Med. Res., 1914, xxx., 297.
11. Longcope: Jour. Exp. Med., 1922, xxxvi., 627.
12. Kellaway and Cowell: Brit. Jour. Exp. Path., iii., 6, 268.
13. Novy and others: Jour. Infec. Dis., 1917, xx., pp. 656 et seq.
14. Loeb: Proteins and Colloidal Behaviour, 1922.
15. Rolleston: Brit. Med. Jour., 1921, ii., 232.
16. Mackenzie and Baldwin: Proc. Soc. Exp. Biol. and Med., 1921, xviii., 214.
17. Cooke: Jour. Immun., 1922, viii., 224.
18. Rackemann: Amer. Jour. Med. Soc., 1922, clxiii., 87.
19. Baker: Amer. Jour. Child. Dis., 1920, xix., 114.
20. Peshkin and Rost: Amer. Jour. of Dis. of Child., 1922, xxiii., 51.
21. Shannon: Amer. Jour. of Child. Dis., 1922, xxiii., 392.
22. McCollum: The Newer Knowledge of Nutrition, 85.
23. Hartwell: Biochem. Jour., 1921, xv., p. 363; No. 5; 1922, No. 1, 78.
24. Asche: Dub. Jour. Med. Sci., 1920, cxlix., 142.
25. Ross: Brit. Med. Jour., 1922, i., 12.
26. Whitfield: Brit. Jour. Derm. and Syph., 1922, xxxiv., 331.
27. Pratt-Johnson: THE LANCET, 1922, ii., 751.
28. Ratner: Amer. Jour. Child. Dis., 1922, xxiv., 346.

A CASE OF EROSION OF THE RECTUM BY AN ECTOPIC PLACENTA.

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EROSION of a hollow viscus by an ectopic placenta is fortunately an extremely rare occurrence, for the consequences may be very serious. The case here recorded was remarkable in that severe hæmorrhage from the rectum was one of the initial symptoms of ectopic pregnancy.

History.—The patient, a married woman, aged 34, bipara, was admitted to the French Hospital under Dr. Septimus Sunderland on account of intermittent griping pain in the lower abdomen, constipation, and severe pain in the rectum during defæcation. The past medical history was negative, except that after the birth of her second child, eight years before, the patient had been very ill from pelvic peritonitis and was kept in bed for five months. When convalescent she was cured at Liège and became pregnant some few months after, but the pregnancy ended in abortion. There had been two miscarriages before the birth of the second child.

The present illness commenced three weeks before admission with a sudden attack of colicky pain in the hypogastrium. The pain was so acute that the patient had to rest in bed for a few days and, on getting up, it returned with increasing severity. Obstinate constipation supervened, and with it intense pain in the rectum, causing a false desire to go to stool. Without the help of enemata the bowels refused to act, and when they did the agony was excruciating. At no time during the present illness had any blood or pus been passed per rectum. On being questioned, the patient stated that on the sixteenth and fifteenth days before admission there had been some blood-stained vaginal discharge, but this she regarded as her normal monthly loss, although it was much less than usual. Previous to this the periods had been regular and normal.

Condition on Examination.—The abdomen was flat and soft and moved freely on respiration. A hard swelling about the size of an orange could be felt projecting above the pubes. It was slightly mobile and not tender. Per vaginam, the cervix was found to be high and tightly pressed against the symphysis. The posterior fornix was bulging from the presence of a hard rounded swelling which, per rectum, appeared to be about the size of an egg. No fluctuating point could be detected.

Three days after admission the patient had a severe hæmorrhage from the bowel and became very pale and collapsed. Dr. Sunderland asked me to see her as he had found in the bulging wall of the rectum, just within reach of the finger, an umbilicated depression about the size of a sixpence. Further examination showed that the depression had a sharp, clean-cut edge, and that it extended through all the coats of the rectal wall. The base appeared to be formed by the tumour in the pouch of Douglas. We discussed the possible causes of the condition and decided that most probably the case was one of ruptured tubal gestation with erosion of the rectum by the placental trophoblast. I arranged to make a direct examination of the rectum with the sigmoidoscope, but before this could be done the patient had another attack of hæmorrhage and

looked as if she were going to die from loss of blood. Immediate operation was decided on.

Operation.—When the abdomen was opened no free blood was found. The suprapubic swelling proved to be the fundus uteri, occupied by a fibroid the size of the closed fist. Signs of old inflammatory trouble were evident in the left tube, which was converted into a small retort-shaped hydrosalpinx, and in the left ovary, which was firmly embedded in the mesosigmoid. The right tube turned sharply down behind the uterus and entered Douglas's pouch, the mouth of which was closed by adhesions. These were separated and the tube traced downwards; it was found to terminate in a ruptured tubal gestation. In order to get better exposure the uterus, with the left tube and ovary, was quickly removed by subtotal hysterectomy. The right tube with the adherent mole were then easily shelled out, care being taken not to enlarge the opening in the rectum. No blood or pus was found in Douglas's pouch. An attempt was made to suture the opening in the rectum, but as that proved impossible the posterior fornix was incised from above and a large drainage-tube passed into the vagina. The mouth of Douglas's pouch was then closed by a purse-string suture, and reinforced by stitching the anterior peritoneal flap made in removing the uterus to the rectal wall above. By now the condition of the patient was far from good, so it was decided not to spend even a few minutes more in performing a temporary colotomy. The patient was put back to bed and kept under morphia; in two days she had improved sufficiently to permit of the colostomy being done.

Examination of Parts Removed.—The ectopic gestation had evidently occurred in the ampullary end of the tube, and the gestation sac had been extruded by tubal abortion rather than by tubal rupture, for the ostium, although expanded, was intact, except for a small tear in its upper edge. Part of the mole remained within the cornucopia-like end of the tube. Dissection of the mole revealed a small amniotic cavity containing the crushed remains of a tiny foetus a few millimetres long.

After History.—The patient passed through a stormy time during the first week, for although there was free drainage from the vagina, signs of pelvic peritonitis developed. The pulse became quick and feeble, and the whole aspect of the patient denoted toxæmia. Fortunately there was no intestinal paresis, and the colostomy acted well from the start. About the seventh day the patient began to improve and was able to get up on the twenty-first day. The colostomy was closed on the fifty-ninth day, the aperture in the rectum having healed soundly. When viewed with the sigmoidoscope a small white scar was all that remained to show where the erosion had taken place. The patient left the hospital in excellent health a fortnight later.

Remarks.

Search in the literature shows that very few similar cases have been recorded, and I have been unable to find an exact duplicate. In a paper read before the Section of Obstetrics and Gynæcology of the New York Academy of Medicine,¹ H. C. Chase described the case of a patient of 25, in whom three months' amenorrhœa was followed during six weeks by painless hæmorrhage, and subsequently by vomiting and hypogastric pain which continued for 17 days. At this juncture the pain diminished, but a large amount of dark clotted and bright red blood was passed per rectum. At the time of her admission to hospital, in a state of grave anæmia and collapse, examination was negative except for a mass the size of the fist in the right side of the pelvis. At operation the cæcum was adherent to the posterior surface of a ruptured right tubal gestation, and, when it was separated, a hole in the bowel wall, a little larger than half-a-crown, was seen. The cæcum contained clot and the entire foetus. There was no free blood in the abdominal cavity. The rent in the cæcum was repaired, the ectopic mass removed, and a drain placed in the posterior fornix. The patient made a good recovery. At the same meeting, Vineberg related a case where an ectopic pregnancy formed in the small stump of the tube left after salpingectomy for pyosalpinx some time before. The ovarian sac was bounded in part by a portion of the sigmoid. Hæmorrhage from the bowel had occurred, but at operation he could not find any opening in the intestine. Evidently the villi had eroded the wall of the sigmoid sufficiently to produce bleeding but not enough to cause a defect perceptible to the naked eye.

¹ Chase, H. C.: Medical Record, N.Y., Dec. 4th, 1920, p. 957. Vineberg: Ibid.

TREATMENT OF THE FLAIL ELBOW-JOINT

WITH A NEW OPERATION OF ARTHRODESIS.

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THE complete flail elbow is not a very rare condition; in my own experience, during the year before this article was written, I have seen six complete and upwards of a score of partial flail joints. The complete flail joint is one in which the patient has absolutely no control over movement and in which there is mobility in all directions. In many cases, particularly following operative treatment, the forearm may sometimes be rotated a complete turn of 360° on the upper arm, there being no bony or cartilaginous connexion between the two. In the partial flail cases there is some apposition between the bone ends, and the muscles are sufficiently preserved to exert some leverage.

Causes.

The great majority of such cases at the present time result from gunshot wounds, which have been treated, usually in the Front areas, by excision of the wounds and bony fragments. In most cases sepsis following wounds has further militated against the preservation of function; in a few cases it has occurred after too generous excision of a tuberculous joint, whilst in rare instances a flail elbow is seen resulting from paralysis of the muscles acting on the joint. In these cases, however, the joint surfaces are preserved, and the treatment is to some extent simpler.

Many of the cases, particularly those following operative treatment, are further complicated by nerve injury, most commonly of the ulnar nerve, but in one case referred to below the radial nerve was completely severed, greatly increasing the disability. One case had been treated by an extension applied to the arm through the fingers, which had so stiffened up that grip was much impaired.

Influence of Occupation on Treatment.

In consideration of treatment of a flail elbow the patient's occupation is of the utmost importance; he may require a strong stable joint, or a moveable joint which, although weak, may be brought under some control by operation or the use of apparatus. The arm has also to be considered; in a right-handed person a strong left elbow-joint is probably of less importance than a movable one. Not only the patient's occupation, but also his other pursuits must be ascertained; in a recent case I had decided on occupational grounds to perform an arthrodesis, when the patient remarked that his principal amusement was violin playing; this was a left elbow-joint, but his playing made it important to retain movement of the fingers up and down the strings in a "creeping" method which would, of course, have been impossible with an arthrodesis.

Treatment.

Before any definite decision is made concerning the patient's future I consider it important that he should have a course of at least six weeks of physio-therapeutic treatment, the arm being carried in a sling in order to shorten the flexors of the elbow-joint. Even better than the sling would be a light plaster case bivalved and removed daily for treatment, which would consist of massage, active and passive movements, but particularly active exercises, principally in the direction of flexion, and faradism to the muscles acting on the elbow-joint. Such a course of treatment can make a vast difference to apparently hopelessly flail cases. After the utmost has been got out of the joint by these means the possibility of controlling the joint by some appliance, or the necessity of operation, must be considered. If the

man has any power of flexion in the joint there seems no doubt that some sort of appliance is preferable; of the appliances on the market I particularly recommend two—the Mackay flail-elbow appliance and Young's flail-elbow appliance. If there is no power of flexion, even although the joint is supported, the Mackay appliance is the better, because by an "elbow flexion cord" taken to harness on the opposite shoulder the man can get a certain amount of flexion by forward movements of this shoulder. He can also lock the joint in any position. If the patient has any power of flexion Young's appliance is very satisfactory; with this the man can bring the arm up to a flexed position and retain it by a simple automatic catch, on release of which catch the elbow-joint is again freed. The joint can also be permanently locked at any desired position. The drawback to both these appliances is that there is no control over the forearm movements; the forearm is usually completely supinated and cannot be altered. Further, there is great difficulty in preventing the appliance slipping down the arm in such a manner that the flail joint and the appliance joint do not act on the same plane. If stability is required, however, and particularly if the appliance is found to be cumbersome and uncomfortable, some operative treatment is indicated.

Choice of Operation.

We have a choice between five operations, some of which are mentioned only to be condemned:—

1. Silk ligaments have been used, being threaded through the humerus and through the ulna to keep the joint in a position of flexion.

2. In the same way fascial transplants from the fascia lata of the thigh have been used. I have no experience of these operations, but they seem of doubtful utility, the joints still being flail to a considerable extent afterwards.

3. Sir Robert Jones recommended a plastic operation on the skin; he removes a diamond-shaped area from the front of the joint and stitches it up transversely to keep the joint flexed. This, I feel sure, is now given up, as the stretching of the skin gives a bad end-result.

4. Goetze's method is simple and to some extent efficient, but it necessitates the use of a complete supporting apparatus. This operation consists of freeing of the lower arm extensors and flexors and their transplantation. After a short time the free working muscles become so strengthened that function of the joint is obtained by use of the Goetze apparatus. A certain amount of pronation and supination is also stated to be possible with this apparatus.

5. Probably by far the most preferable operation is arthrodesis. Previous to the operation I am about to describe I have not seen a successful result from arthrodesis; the elbow is admittedly not an easy joint to deal with, but I am sure that most of the bad results are due to badly-planned operations. Too much has hitherto been expected of the joint in the devitalised state of its bony fragments and the poor immobility given by previous operations. The adjoining surfaces of the radius and ulna have been bared in wedge-shaped fashion and the humerus similarly bared and wedged between the ends of the forearm bones. Even with wiring no stability resulted from this union; ankylosis must have been very rare and had never occurred in any case I saw. Having little faith in this operation, I never performed it; it seemed to me, however, that if the flail elbow resulting from excision—particularly where the lower end of the humerus had been removed—was treated rationally the patient could almost be promised a complete arthrodesis. The operation which I devised and now perform in this type of case is as follows.

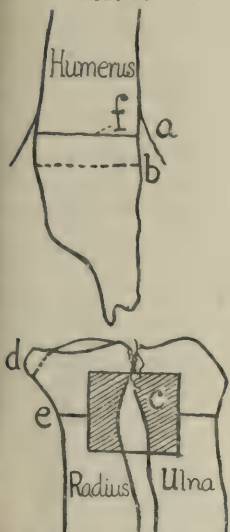
Technique.

Access to the joint is obtained by a median posterior incision; particular care is taken of the nerves, especially the ulnar nerve on the inner side; two skin flaps are reflected well forwards and the triceps is

stripped upwards. The forearm muscles are then freed from the bone, but the periosteum is left attached. The lower sclerosed end of the humerus (usually about $\frac{3}{4}$ inch of bone) is then completely removed; the periosteum above this is raised in a cuff leaving the bone bare. The bone is next filed into a complete square with an ordinary rough file. The position of ankylosis is next decided. It is not, of course, possible to give the desired position absolutely, but with a certain amount of trouble some pronation or supination can be obtained. The forearm bones are then dealt with. It is usually found that the two bones are ankylosed at their upper ends, either by bone formation or by strong fibrous tissue. This is preserved as far as possible, particu-

it is found that a very good firm apposition is got. The cuff of periosteum, usually split in two or three places longitudinally, is brought down and stitched over the line of union, so helping bone formation in the part of greatest need. It is now important to get a good muscle covering for the ends of the bone. This is usually obtained without much difficulty, the triceps being particularly useful. The skin is sewn with silkworm gut without drainage, and a plaster cast applied over all, to include shoulder, wrist, and chest. This is retained for three months at the end of which time it is taken down, the stitches are removed, and a small cast, including arm and forearm, put on for six weeks. A sling is applied after the small plaster has been removed and daily physio-

FIG. 1.



a, Periosteum raised in a cuff. b, Sclerosed end of humerus removed and end squared. c, Square cut out of ulna and radius. d, Part of the beveling. e and f, Hole for silver wire.

FIG. 2.



CASE 1.—Much new bone formation round ulna and radius. Lower end of femur gone. Apposition when bones approximated, but no control.

FIG. 4.



CASE 2.—Lower end of humerus gone and remainder sclerosed. Greater part of olecranon removed. Some ankylosis between radius and ulna.

FIG. 3.



CASE 1.—Showing the result 14 months after complete bony ankylosis, with good new formation of bone by the separated periosteum.

FIG. 5.



CASE 2.—X ray taken ten months after operation showing the complete ankylosis with much new bone formation. Wire is brought round in front of the joint and knotted at the side.

larly while the bones are being sawn. A square hole (see Fig. 1) is now sawn as near as possible to the ends of the bones, the square fitting the already similarly-shaped humerus. A small fine frame saw, with detachable blade, is the most useful for this purpose. The humerus is then fitted into the square and a bone drill used to perforate a hole from side to side of the two forearm bones through the end of the humerus. Stout silver wire is passed through this hole and tied, with the knot in front of the joint.

This position of the wire precludes pressure on the skin and consequent irritation. Behind there is not a great amount of muscle to cover the wire, but in front of the joint it is deeply buried. The ends of the forearm bones are bevelled as much as possible to prevent any projection. When the wire is in position

therapeutic treatment started, massage and faradism being used to get the muscles into condition, and ionic medication with calcium to strengthen the callus.

CASE 1 (Figs. 2 and 3).—A man, aged 25, wounded through the right elbow-joint in March, 1918. Wounds excised at the base in France, and he was discharged from

hospital in April, 1919, following prolonged sepsis. At the end of 1919 an attempt at arthrodesis performed. Admitted to my care in April, 1920, because of the "uselessness of his arm." On examination the elbow-joint was practically completely flail; only a few degrees of voluntary flexion possible from the extended position. No power of extension. Forearm could be rotated through a half-circle on the arm. Extensive scarring round the elbow-joint. Patient had worn a supporting apparatus, but found it impossible to carry on his work as a labourer. There was a further complication, a complete musculo-spiral nerve lesion below the origin of the triceps branches. X ray showed that the whole of the lower end of the humerus and the greater part of the olecranon had gone. There was much new bone around the ends of the ulna and radius. The bone ends were fairly healthy in appearance. In a right-handed labourer a strong right elbow-joint with the angle greater than a right angle, about 110° , and the forearm in the supinated position is preferable. The tendon transplantation for the nerve injury was deferred until the bones were stabilised to give better leverage. It was decided, therefore, to perform arthrodesis.

Operation.—The operation on May 5th, 1920, was exactly as described above, except that the wire was knotted behind the joint. A good covering of muscle was obtained. Before the plaster cast was applied the joint was beautifully firm, and this position was retained without difficulty while applying the plaster.

On July 25th the plaster and stitches were removed; wound completely healed, joint feels firmly ankylosed. Light plaster case applied, and removed in its turn on Sept. 8th. The joint was firm; light massage and faradism, calcium ionisation, X rayed. In August, 1921, joint was firmly ankylosed. The patient uses it freely and the muscles are in good order.

CASE 2 (Figs. 4 and 5).—A man, aged 27, wounded in right arm August, 1918. Wounds excised in France; healed up in December, 1918. No further operation. Admitted June, 1920, because of "weakness of arm." On examination the right elbow-joint was flail, with no power of flexion or extension. Ulnar nerve involved in scar, but not completely severed. Only slight scarring of skin, sepsis having apparently been a minor consideration. X ray showed that the whole of the lower end of the humerus had disappeared; the end remaining was somewhat conical, being in apposition to the forearm bones. The olecranon process had also been excised in great part and there was some new bone formation round the ends of the ulna and radius, apparently firmly ankylosing them. The patient was a labourer and found the arm useless to him. He was keenly desirous of having the joint ankylosed.

Operation.—The operation, on July 6th, 1920, was as described. The ankylosing of the forearm bones made immobilisation an easy matter. After fitting and drilling, the terminal portions of the ulna and radius were cut as nearly flush as possible and the insertion of the triceps fixed over them. The ulnar nerve was carefully preserved, no attempt being made to free it from the scar tissue. Convalescence was uninterrupted and in October the large plaster was cut, stitches removed, and a lighter plaster applied after X raying. The patient was discharged from hospital with the joint firmly ankylosed; he is now working and states his arm is "champion." In the spring of 1922 he fell on his ankylosed joint and fractured the lower end of the humerus above the arthrodesis, but it united satisfactorily and is now as firm as ever.

Conclusions.

1. Flail elbow supporting appliances are not satisfactory as a rule; the patient finds them very cumbersome and usually discards them.
2. In most cases an arthrodesis, and in all cases a stable elbow-joint, can be promised, for if bony union does not take place, fibrous union and accurate fitting give an equally good result.
3. The operation is extremely simple; the result is strong, as shown in the case where the humerus was afterwards fractured above the point of old union.
4. The elbow can be fixed at practically any angle, and there is a fair range of choice in fixing the forearm.

ASSOCIATION OF ECONOMIC BIOLOGISTS.—A meeting will be held at 2.30 P.M. on April 27th, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort-road, South Kensington, London, S.W., when Dr. C. M. Wenyon will read a paper on Some Recent Observations on Pathogenic Protozoa of Plants and Animals, and a discussion will follow.

CASE OF HYPERTROPHIC PERIPHERAL NEURITIS,

WITH RECOVERY.

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In 1921 Dr. F. J. Nattrass published¹ an account of a case of recurrent hypertrophic neuritis occurring in a boy aged 18. The following case presents striking similarity in many aspects. The patient, a tailor, aged 42, gave an account of his past history and of his illness as follows, and presented a clinical picture as detailed below, when first seen as an out-patient in May, 1922. He was a distinctly intelligent and observant patient.

Family History.—Nothing of any significance could be ascertained in the case of parents or relations.

Past History.—Prior to 1910 he had suffered from a gastric ulcer for which in that year he underwent an operation, and since the operation he has been practically free from abdominal symptoms. Denies venereal disease. Has only taken alcohol on very rare occasions—practically a teetotaler; smokes very little tobacco; is married, and wife and five children are all in good health.

Present Illness.—On Jan. 20th, 1922, he had an attack of "influenza"—i.e., catarrh of respiratory passages and a temperature—when he took to his bed. His wife and several of his children also presented similar symptoms, and he had to leave his bed before he felt well enough to do so in order to care for them. His wife and children made an uneventful recovery. On his second day in bed he noticed stiffness and pain on the ulnar border of his left hand. The influenzal symptoms cleared up after a week, but the discomfort in the hand persisted, and similar feelings of pain and stiffness commenced in the right hand and in both feet. These symptoms became gradually worse, and were accompanied by increasing weakness of all four limbs and wasting of the muscles. On his private doctor's advice he underwent a course of electrical treatment, which had lasted nine weeks before he presented himself in the out-patient department, and from which he had derived no benefit. His condition had steadily deteriorated, and for the past four weeks he had experienced increasing difficulty in articulating his words and in masticating and swallowing his food. He stated that his hands "felt as large as boxing gloves," and that when reading the paper his vision was unimpaired for a time but gradually became blurred and misty.

Clinical Condition.—He walked with a shuffling weak gait with a distinct element of foot-drop. He had to be undressed, as he was incapable of performing any of the necessary procedures of unbuttoning and removing his garments. He was pale, thin, and generally wasted; none of the thoracic or abdominal viscera presented any evidences of disease.

1. Special senses: (a) Vision—could read ordinary print without difficulty; fields, roughly tested, normal; fundi normal. (b) Hearing unimpaired.

2. Cranial nerves: 1st, not tested; 2nd, as above, pupils equal and react to light and accommodation; 3rd, 4th, and 6th, movements complete, but a rapid nystagmus on looking to the left; 5th, motor weak, sensory unimpaired; 7th, weak; 8th, normal; 9th and 10th, mastication, articulation, and swallowing weak; 12th, tongue protruded straight; no wasting or tremors noted.

3. Sensation: There were disturbances of sensation of the "glove and stocking" distribution as follows. Hands: Complete loss of appreciation of heat and cold, with some blunting of pain sense, over dorsal and palmar aspects of both hands and extending up the forearm for about two inches. Complete loss of sense of position of the fingers and tactile localisation. Calves and feet: Complete loss of appreciation of heat, pain, and cold over sole and dorsum of both feet; failure to appreciate heat and cold also extended upwards to the level of the knee on each side. Complete loss of vibration sense and of sense of position of foot and toes.

Coördination of movements was not specifically examined, since the patient was apraxic as regards both hands and feet by virtue of the muscular wasting and loss of motor control. Over the rest of the body no loss of superficial or deep sensibility could be detected.

4. Motor system: (a) Extreme loss of power in all movements of arms, not quite so marked in lower limbs, and less

¹ Journal of Neurology and Psychopathology, 1921, ii., No. 6, pp. 159-165.

marked above than below the knees; (b) general wasting of all limb muscles, particularly well marked in calves, forearms, and small muscles of the hands—muscles very flaccid; (c) complete loss of all deep and superficial reflexes; (d) fibrillary twitchings well marked and observed on many occasions in biceps, triceps, latissimus dorsi, and gastrocnemii; (e) sphincters not disturbed.

5. The nerve trunks comprising the brachial plexus and the ulnar nerves of each arm appeared to be definitely hypertrophied and somewhat tender when rolled under the fingers. This important point was verified by making numerous comparisons with the nerves of other patients in the ward who were thin and wasted from other causes.

6. Wassermann reaction in blood, negative.

Treatment.

The patient was admitted to the wards and remained an in-patient for ten weeks. During the whole of this period he was given small injections of anti-influenzal vaccine every five days. The mouth was cleansed and all the teeth removed, the bowels regulated, and small quantities of arsenic and nux vomica administered t.d.s. After three weeks' rest in bed, gentle massage of the affected limbs was commenced, and the patient discharged to continue as an out-patient for massage. He was afebrile throughout. From the time that massage was commenced a marked improvement set in, and after attending as an out-patient for six weeks, the patient discharged himself and returned to light work at home. Normal powers of articulation, mastication, and swallowing returned some weeks before the recovery of the power of the limbs.

Re-examination in December, 1922.—The only remaining evidences of the previous disturbance are:—*Objective:* (1) Slight nystagmus, which may have been always present; (2) very slight incoördination of movements of hands; (3) the hypertrophy without tenderness of the palpable nerves and nerve trunks, which is still very marked in spite of the recovery of the limb muscles to the normal proportions. *Subjective:* Only complains of a little stiffness in the movements of the toes of both feet. Examination showed abdominal reflexes and tendon reflexes of lower limbs are present, normal, and equal. Plantar reflex not obtained. Biceps jerks normal and equal, triceps and supinator jerks not obtained. No disturbance of cutaneous sensation could be detected. The power of all limbs is good.

The patient has for the past month been doing 10½ hours a day heavy manual labour as a trimmer's machinist, and pronounces himself as being in every way as well and strong as before his illness. In appearance the patient is of good colour, slightly built, and thin.

Remarks.

The clinical features of especial interest in this case are:—

1. The absence of any definite toxæmia which could account for the widespread and damaging peripheral neuritis. There would seem to be no doubt that the patient experienced no more than an ordinary mild attack of influenza, since his recovery from the catarrhal and general symptoms was complete in one week. At the present date he is inclined to think that he had begun to experience some slight loss of motor power prior to his attack of influenza, but this was insufficient to cause him any apprehension or interfere with his ordinary duties.

2. The widespread fibrillary twitchings noticed over a period of several weeks which suggested some involvement of the anterior horn cells, but must presumably be attributed to damaged motor-nerve fibres in the peripheral nerve in view of the well-established sensory changes.

3. The completeness of the recovery of both motor power and deep and superficial sensibility.

4. The marked hypertrophy of the peripheral nerves and nerve trunks. This last and most important feature was noted by several observers and repeatedly verified by comparison with other individuals.

There would seem to be every reason to regard this case as a parallel to the case reported by Dr. Natrass, who also saw this case prior to his admission to the Radcliffe Infirmary. It is impossible to prognosticate whether there will be a recurrence, but the patient's present strenuous and industrious occupation should be a good criterion of the completeness of his recovery.

I am indebted to Dr. A. G. Gibson, physician to the Radcliffe Infirmary, for permission to publish this case.

Medical Societies.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

DISCUSSION ON SYPHILIS AND MARRIAGE.

A MEETING of this Society was held at 11, Chandos-street, London, W. 1, on March 23rd, Dr. WILFRID FOX presiding, when a discussion on syphilis and marriage took place.

Dr. AMAND ROUTH opened the debate with an address, which was published in THE LANCET of March 31st.

Dr. FOX said that an interesting point was whether a woman who had had a syphilitic child was herself necessarily syphilitic. The modern view was that she must have syphilis, but he had not been convinced. He quoted a case described by the elder Fournier, in which a woman who had borne a number of congenitally syphilitic children was later impregnated by a healthy man and thereafter gave birth to a healthy child; she subsequently resumed her cohabitation with the syphilitic father and produced congenitally syphilitic children again.

Education as a Means of Attacking the Problem of Syphilis.

Sir JAMES PURVES-STEWART said that on the question of syphilis and marriage there were several different parties to be considered, sometimes with conflicting interests. He believed that the number of individuals who deliberately married, knowing themselves to be in an infective state, was relatively small. What answer should be given by the medical man to the syphilitic individual who wished to marry? Nowadays most syphilologists would agree that if a patient preserved a consistently negative W.R. in the blood for two years, if a provocative W.R. proved negative, and the cerebro-spinal fluid was also negative—permission to marry might be given. provided there were no physical evidences of syphilitic disease. Unfortunately the patient often indulged in promiscuous intercourse during this probation time. The State might conceivably prevent him from marrying, but the real problem was the prevention of such promiscuous intercourse, which constituted a real danger to the State.

The best mode of attacking the syphilitic problem in reference to marriage was by means of education. Firstly, insistence must be made on the intensive education of the medical profession in order to acquire increased skill in the diagnosis and treatment of venereal diseases. Secondly, the lay public, especially young people, must be educated with regard to the dangers of these diseases. One could not expect too much from attempts at educating older persons, but, fortunately, they were less likely to acquire these diseases. The first aim must be to bring about prevention. The ideal thing, from the point of view of the community, would be preventive inoculation against venereal diseases, as against small-pox, enteric fever, tetanus, &c., if it could be attained. It might be a matter of two or three different inoculations. But that idea was not yet practicable. There was not yet available a serum which was dependable as a preventive of syphilis. Failing inoculation, one must fall back upon local preventive measures. Notwithstanding certain disadvantages, which were always being emphasised by the lay press, and still more by the religious press, this prevention by local measures was vastly simpler than the life-long treatment which became necessary after infection had actually occurred. Once a man became syphilitic he required treatment, or at all events observation for the rest of his life. The medical profession had no right to withhold the knowledge of preventive measures from patients. He did not think such knowledge would necessarily produce a wild outburst of sexual promiscuity; but even if it did, this, though

bad enough, would be a lesser evil than the infection of innocent women and future children. Another problem was that of prostitution. Attempts to regulate prostitution or to stamp it out were insufficient, for the majority of cases were infectious from amateurs. The need was, therefore, to see that young men were clearly instructed as to the dangers of venereal disease. Venereal infection, in itself, was no crime; it was only a crime when the sexual connexion at which it was acquired was a misdemeanour. A man might acquire syphilis innocently—e.g., from his wife. In regard to venereal disease, innocence and ignorance were entirely different things. The most expert roué was the one best equipped with adequate means for avoiding disease, while it was the inexperienced youth, probably intoxicated, who usually acquired venereal infection. It was the duty of the profession to prevent venereal disease by every means in their power. By all means let them vigorously preach the desirability of continence in both sexes in unmarried persons; but, so long as human nature remained as at present, it would be a cruel and immoral policy to withhold knowledge concerning preventive measures from any intelligent adolescent or adult.

The Aspects of Infectivity and Life Assurance.

Dr. J. H. SEQUEIRA said that the problem of when it was the duty of the doctor to allow a man who had become infected with syphilis to marry was a most important problem, and one which bristled with difficulties. Certain tests had been laid down but it was a very difficult thing, in a large proportion of cases, to attain to such a test. There was the primary chancre type of case with a negative W.R., which could be rendered non-infective, or indeed cured, by adequate treatment in most cases, such a patient possibly never having had a positive W.R. If such a patient were watched for two years afterwards, and the W.R. remained negative, he could safely be allowed to marry. There was also the type of primary chancre with a positive W.R., and so on, to the stage of generalisation, where it was increasingly difficult to produce a permanently negative W.R. Still, in the larger proportion of such cases a cure could be procured, and the earlier the cases the larger the proportion. To these, it would be agreed, permission could be given to marry. But there was a more difficult type of case, in which the W.R. could never be rendered permanently negative. Members would recollect cases which had been treated more or less intensively for several years, without a permanent negative W.R. being secured. Some such could be possibly rendered non-infective by the administration of thyroid, but not all. As Sir James Purves-Stewart had said, the patient had to be considered from several aspects. There were two aspects from which Dr. Sequeira usually approached a case; one was from the standpoint of infectivity, the other from what might be called the life-assurance point of view, and he quoted the following case to illustrate his point: A young officer became infected during the war and placed himself in the hands of a chemist, who temporarily relieved his symptoms. The patient had no very marked secondary symptoms, but at the end of 18 months he developed complete hemiplegia. The W.R., for both blood and cerebro-spinal fluid, was positive, and he had the abnormal cell count characteristic of cerebro-spinal syphilis. It was believed that the case was of vascular origin, and that intensive treatment would get him well. Under that treatment he had now had, for a considerable time, a permanently negative W.R., his cerebro-spinal fluid was normal, and he was well. He was engaged to be married, and consultations were held between venereal disease experts and the general practitioner as to whether it would be right for him to marry. Dr. Sequeira held that if he were rendered non-infective for a certain period it would be safe for him to marry from the point of view of risk of infection to the wife and any progeny there might be; but that, from the life-assurance point of view, he

was a damaged man, and so his expectation of life could not be said to be so good as if he had not had the disease. That man might, at some remote time, develop some symptoms, but it was necessary to differentiate that possibility from active likelihood of infection of wife and children.

Could a man whose positive W.R. could not be changed by treatment be allowed to marry? He thought there might be too rigid a standard. It was a question of prolonged treatment, and he had advised in cases of this type that at regular periods during married life the patient should undergo treatment, and he had seen normal children from such marriages. The experience of others in such cases would be valuable. Sir Jonathan Hutchinson allowed marriage after only two years of continuous treatment by mercurial pills, and in a large number of cases that course proved safe. Dr. Sequeira had known men who underwent that course and whose families were healthy. He agreed it was important to have a high standard, but in certain circumstances its enforcement was a considerable hardship. The best course was to explain both the infectivity side and the life-expectation side to both parties, and in most cases that could be done. It was very uncommon to come upon a case of knowing or deliberate infection, and among the educated classes such was practically unknown. Constantly, also, among the patients who came to the London Hospital were men who years before had run the risk of infection, and when contemplating matrimony came to make sure that they were not infected.

Three Groups of Cases.

Dr. H. C. SEMON said that his experience of women at out-patient clinics did not coincide with that which Dr. Routh expressed, for he found that women were more conscientious in their attendances than were the men. He wished to put forward three groups of cases from the point of view of marriage. The first were those having a chancre only, in which the W.R. had not become positive, and no secondaries had developed. If these, after a year of careful observation, preserved their negative W.R., he agreed they might be considered as cured. He had not seen or read of a case which was negative to start with, continued so, and after a year of observation developed a positive W.R. A patient in this group might reasonably be permitted to marry in 18 months. The difficulty was when the syphilis had become generalised (group 2) and was no longer a local disease. These cases must be watched individually; no concrete rule could be laid down until the real meaning of the W.R. was known. Dr. Semon agreed with Dr. Sequeira as to cerebro-spinal syphilis; it was questionable whether a man whose cerebrum had been damaged by syphilis ought ever to be allowed to marry; he could not then be regarded as a normal person, and at any time later he might again develop manifestations in his nervous system. The question of para-syphilitics marrying did not arise; if asked whether a tabetic or a general paralytic should marry, every member of the society would at once give an emphatic negative. In group 3 he would place tertiary cases and those cases still latent after three years of thorough treatment. He agreed that such cases were no longer infectious in the great majority of cases. With the diffusion of knowledge now so general, he should in his own practice (besides continuing treatment of the husband) insist on treating the wife during the first six months of her first pregnancy at least. All statistics concurred in the success that attends rigorous antenatal measures.

A Family Practitioner's Experience.

Dr. HENRY MENZIES, invited by Dr. Fox to give the meeting the benefit of his experience as a family practitioner, said that he had seen certain interesting cases. He remembered four people who had syphilis and afterwards married and had healthy families, and then, in later years, developed definite syphilitic symptoms. One man developed ataxy,

with a positive W.R., in late married life; his wife and children remaining healthy. Another developed ataxy, with a negative W.R.; his family were healthy. One man had syphilis when he was 20, married when he was 25, and had quite healthy children. The man had no illness until he was 70, and then he developed a typical ulceration of the tongue, with mucous plaques. Another man married and had perfectly healthy children, but his wife, after his death, developed cerebral syphilis. He did not think it followed that if a man had syphilis when young, and showed manifestations of the disease later on, that his family were necessarily infected. He would like to know what was the actual merit of the various "neo-" preparations in comparison with the original ones. He had not known the former abolish a positive W.R. in any case, and his view was that the new preparations were but a feeble imitation of the real thing.

Congenital Syphilis in Children.

Dr. D. N. NABARRO said that most people were agreed that the W.R. was a very valuable test of the presence of syphilis; he thought a positive W.R. always meant syphilis, but whether a positive W.R. in a patient who had syphilis many years ago meant present syphilis in an active state was another matter. If a man had had syphilis ten years, he would, as a rule, no longer be infective to his wife or children. His experience of the disease had been obtained largely at the Hospital for Sick Children, Great Ormond-street, and therefore mainly in regard to congenital syphilis. The treatment of congenital syphilis in older children had so far been disappointing. Unless one had the patient very young, it was very difficult to procure a permanent negative W.R., if that was to be aimed at as an indication of cure. He had given 40 to 45 injections to children without favourably altering the W.R. at all in some cases. Nevertheless, their general condition was often much improved by the treatment. If the children could be seen within the first few months of life, then one or two courses of treatment by injections of arsenic and with mercury would render the W.R. negative; in most it would remain so, and the patients would show no sign of disease. Some relapsed, and then another course of treatment again made the W.R. negative. He had had such patients under observation only for six years as yet, and that was not sufficiently long to enable him to say whether they were cured. They must be kept under observation until they were 20 years of age, or longer, before it could be said no further manifestations were likely to occur. It was not yet known whether syphilis was a life-long infection. On that account he was entirely with Dr. Routh in his advocacy of establishing as widely as possible the antenatal treatment of syphilis—namely, the treatment of the pregnant woman. If congenital syphilis could be made a notifiable disease it would help, because it would enable the profession to get into touch with syphilitic families; the mother could then be induced to undergo a course of treatment, as she could be practically promised that it would result in her giving birth to a healthy child. The mother would thus have every incentive for undergoing treatment, for it was she who had all the trouble with syphilitic babies; she had to bring them regularly to the hospital for treatment, and even then a cure could not be promised; moreover, children did not like the treatment. Dr. Routh had said that the husbands ought to be induced to come for treatment; in Dr. Nabarro's experience it was very difficult to get them to come, and often their work prevented their getting there before 6 P.M. He supposed that it must be accepted as true that when a child was syphilitic the mother also had the disease, yet he had a few cases in which the mother's W.R. was negative, even after provocative injections. One case was that of a congenital syphilitic father whose child gave a positive W.R., the mother being negative. This was the only case of the kind he had had. With regard to the question whether a mother

was always syphilitic if she was once infected by her offspring, he had seen families in which the mother had had one, two, or three syphilitic children, yet from later pregnancies the children had been non-syphilitic. He thought the syphilitic virus diminished in intensity and infectivity as years progressed, and that though the mother might have been originally heavily infected and had no treatment, as the years went on she eventually had healthy children.

Dr. MORNA RAWLINS, speaking of women who gave a negative W.R. and had babies who were congenitally syphilitic, said that if one looked on ahead one would probably find that even with a negative W.R. a patient might develop some syphilitic sign or some nerve lesion. Therefore if a woman bore a syphilitic child, even though her W.R. might be negative, she should be treated as a syphilitic patient.

Dr. FOWLER WARD said he had found that if syphilitic children were treated for three years and upwards they did extraordinarily well. Many of the children had not any very definite syphilitic lesion; they had headaches and were ailing in a general way. When put on to intravenous injections they improved out of knowledge. As he was in a small town he knew the patients, and the mothers continued with the treatment for their children five, even to ten, years. With regard to the psychological effect of the injections the great point was to instil confidence. With regard to forbidding syphilitics to marry, in all the 20 years of his practice he had never been asked about the marriage of syphilitics, and from that fact he concluded that syphilologists were barely touching the fringe of the subject. He agreed with Sir James Purves-Stewart that the only way to combat this disease was by education.

Compulsory Notification.

Dr. DENNIS VINRACE accentuated the importance of encouraging patients who had suffered from V.D. to be examined from time to time by practitioners in venereal work. Such a course would spare the feelings of persons who had been infected and guide them as to their conduct and the treatment they required. Male V.D. patients should marry as early as permissible; they would do less harm to the community as married men than as bachelors. A doctor should not betray confidences; he had no right to acquaint a wife of her husband's misdoings, but he could treat the wife sub rosa. Compulsory notification of V.D. would defeat its own ends. It was only required for poor, helpless, and ignorant persons. As regards the educated and upper classes, any such provision would not only convert the doctor into a statutory policeman, and compel him to betray his trust, but deprive him of his legitimate fees. Such persons would employ chemists or quacks or treat themselves. As regards Sir James Purves-Stewart's hope that ultimately a vaccine would be discovered for the prevention of V.D., Dr. Vinrace considered that if it were provided the immorality of the community would be vastly increased.

Dr. H. WANSEY BAYLY expressed his appreciation of Sir James Purves-Stewart's statements concerning the need for the education of the public as the best means of bringing about healthy marriages. He felt convinced that concentrating effort in treating the patient after he had acquired the disease was a very inadequate means of combating the state of things. Everybody, particularly children and adolescents, should be taught that the only way to avoid contagious diseases was to avoid contact; but his experience had been that the adult was not sufficiently impressed by argument alone as to the morality of the matter, but that he was susceptible to appeals to his honour. It should be impressed upon him that it was his duty, as a citizen, if he should acquire the disease, to take such steps as would minimise the possible evil effects on innocent persons with whom he might afterwards be associated.

The Case of the Engaged Man.

Colonel L. W. HARRISON reminded members of Sir Jonathan Hutchinson's teaching, that he knew only

two instances of transmission of the disease to children by men who had followed his requirement of two years of treatment, though many of them had themselves suffered from later manifestations. That seemed to show that the transmissibility died out in time: Colonel Harrison usually advised patients to wait four or five years. In this discussion the case had not been mentioned of the man who found himself to be infected when engaged to be married; if he did not get married fairly soon, there would be a good deal of family trouble. What should be done there? Should everything be broken off because the infection seemed too recent to permit of marriage, or was there a means of preventing infection of his wife if he did marry? The effect of antenatal treatment in preventing transmission was suggestive, and he thought that, so long as a man remained actively under treatment and was reacting normally, he was very unlikely to transmit the disease, even though infection was recent. He suggested this solution of a difficulty which most doctors would admit was sometimes very real. Gennevich had recorded many cases of men who had received his intensive courses of "606" and mercury, and had been allowed to marry within two years of infection, fine healthy families having resulted. He suggested that experience might prove that after intensive treatment, thoroughly carried out, patients could be allowed to marry with safety sooner than had formerly been considered possible.

Reply to the Debate.

Dr. ROUTH said that it seemed, from the discussion, that the profession was not yet quite sure how long, on the modern methods of treatment, a syphilitic subject should be required to be treated before marrying. It almost seemed that modern methods were not so sure as those carried out by Sir Jonathan Hutchinson, but there must be a flaw in this argument. Still, mercurial treatment in 1905 sufficed to procure healthy children, and that needed explaining. It had to be carried out continuously in those days, whereas now it was thought by many that a negative W.R. meant cure, and that there was no necessity for continuing the treatment. With regard to the question whether mothers who had borne syphilitic children were always themselves syphilitic, Dr. Routh suggested that it might be assumed that with each pregnancy the woman was circulating a larger dose of the substance which kept the spirochaetes quiet, so that eventually they were rendered quite inactive and she bore healthy children. He was glad to hear Dr. Nabarro emphasise the importance of treating the syphilitic mother before the birth of the child, in preference to treating, over a long period, the child after birth. He felt strongly that this was the only way to get rid of congenital syphilis.

EXHIBITION OF CASES AND SPECIMENS.

Dr. SEMON described a case of

Tabes with Recurring Herpes Zoster.

The man, aged 35, had well-marked ataxia, absent knee- and ankle-jerks. Both pupils reacted sluggishly to light; there was loss of the stereognostic and orientation senses in the left hand. The patient dated his infection from 1904, and in 1909 he was treated for diplopia. Dr. Semon had been giving him silver salvarsan, and after the third injection the patient showed him a patch of herpes on the front of the right thigh, saying that he had been subject to these recurrent eruptions for the last five years. It always appeared after a bout of pain. Dr. Henry Head had described such cases in Clifford Allbutt's "System of Medicine," stating that it was a very rare phenomenon, and that he had only seen five cases in all. With the injections now being given, the differential diagnosis between an arsenical eruption and one due to tabes became important. In this particular case the eruption had involuted completely, although a subsequent injection had since been given.

Major A. T. FROST spoke on the subject of

Thyroid Deficiency in Subjects of Syphilis.

The cases shown at the November meeting of the Society had all progressed in a satisfactory manner; those which had previously been having frequent relapses had shown no signs since, and about half of them now had a negative W.R. on the ordinary treatment, which had been taken for years before without making any difference to the reaction. Half the cases had changed from a positive to weak-positive W.R. He suggested that much of the reduced vitality in syphilis, especially in the later stages, was due to thyroid deficiency, and that the lethargy and inertia probably were due to infection of the ductless glands, the thyroid among them. One case had relapses two or three times in three years, though all the time he was having fairly intensive courses of treatment. Eventually he showed jaundice, and later erythema as a result of the treatment with arsenic. The speaker then found signs of thyroid inefficiency, and put him on thyroid treatment. Following this, high doses of arsenical compound were renewed, and no sign of arsenic intolerance has occurred. Arsenic alone did not attack the organism of syphilis, and he thought there must be a substance in the blood increased or stimulated by the ductless glands secretions, which, uniting with the arsenic, operated efficiently on the disease without organotropic effects from the metal, if this substance is in sufficient quantity. He commended the suggestion for study by the Society.—Dr. FOX said that the matter should be followed up. A series of cases should be treated with thyroid at the same time, so that statistics could be compiled.—Dr. FOWLER WARD said a man with tertiary ulceration of the shin had not made any progress on the ordinary N.A.B. treatment, but since he had been having thyroid (as suggested at a former meeting), though the W.R. had not become negative, healing had been quite rapid.—Dr. SEQUEIRA asked if any member had had experience in the treatment of syphilis in myxomatous patients.—Dr. NABARRO said he had had cases of children who had had as many as 40 injections and yet retained positive W.R. throughout. Since, at the last meeting, it was suggested that these stubborn cases might be due to some of the glands not acting properly, some patients were tried on thyroid, some on parathyroid, some on mixed-gland extract, and there had been encouraging results. One case which had a positive W.R. for 14 years had now become negative. In addition, one or two of the children were now mentally brighter.—Dr. H. M. HANSHELL said that at the meeting in November he was much interested in this subject, and at that time he had in hospital a lascar who had had a relapse, and mercurial and neokharsivan treatment had no apparent effect on him. He could not find that the man lacked thyroid secretion; he was hairy, and in every way fit. He had a persistent rash and an unhealed chancre. He was given thyroid and the whole condition cleared up.

Gumma of Tongue.—Gumma of Right Calf.

Dr. VINRACE showed a case of gumma of tongue of four months' duration in a man aged 50. He was a platelayer and had contracted syphilis at the age of 29. It was treated for the following two and a quarter years and apparently cured. No more treatment nor symptoms occurred till November, 1922. In February, 1923, he attended St. Paul's Hospital with ulcer of tip and adjoining edge of the tongue. W.R.++. At the age of 38 he had become the fourth husband of a widow then aged 40. She died of G.P.I. ten years after the marriage; there was no pregnancy; history of the three previous husbands was not available. An alternative diagnosis of epithelioma and biopsy was suggested by Dr. Sequeira.

Dr. VINRACE also showed a case of gumma of the right calf of six months' duration in a man aged 51. He had been married for 30 years, contracted syphilis eight years ago, and had had no coitus since then. He was treated for a few months following infection and then had no treatment for some years. In April,

1922, he attended St. Paul's Hospital for three weeks with numerous tertiary ulcers of six or eight weeks' duration. In March, 1923, he attended St. Paul's Hospital again. Numerous cicatrices on right arm and forearm, on the lower thigh, and upper knee and ankle, and a large deep gummatous ulcer on the right calf.

Cases.

Dr. FOX showed a case of double infection and one of primary sore inside the lip.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW

A MEETING of this Society was held on April 6th, Dr. T. MORRIS CRAWFORD, the Vice-President, in the chair, when a discussion took place on the

Diagnosis of Pulmonary Tuberculosis, with Special Reference to Radiology.

Dr. LEONARD FINDLAY referred particularly to the malady in the young, and stated that his conclusions were based upon clinical, radiological, and pathological examination of the material, and that meticulous care had been taken in the matter of diagnosis. Dr. Findlay's belief was that in the ante-puberty period of life tuberculosis of the lungs is a disease of infancy and early childhood, and that it runs an acute or subacute course. In an older child a pulmonary lesion, and especially a chronic pulmonary lesion, should be diagnosed as of a tuberculous nature only with the greatest hesitation and in the presence of the utmost proof. Charts were shown in support of this thesis. Dr. Findlay also pointed out that pulmonary tuberculosis, unless in the very young infant, is seldom, if ever, limited to one lung or one lobe of the lung.

Dr. D. CAMPBELL SUTTIE explained how difficulties arose with regard to the interpretation of X ray films, and showed films of cases of pulmonary tuberculosis. Dr. Suttie's conclusions were: 1. Admittedly recognisable X ray appearances have a definite value in the face of negative clinical findings. 2. Negative X ray appearances have no claim for consideration when clinical signs are undoubtedly present. 3. There are pathological conditions which in their early stage are undetectable by either—e.g., miliary tuberculosis. 4. Certain pathological conditions are shown by radiograms (a) before clinical signs or symptoms appear and (b) after clinical signs or symptoms have disappeared. 5. Certain pathological conditions are detected by the clinician before X ray appearances are present.

Dr. A. S. MACGREGOR introduced the subject from the point of view of the Department of Public Health, and referred to the work done by Dr. J. A. Wilson and Dr. F. L. Henderson and himself in correlating clinical and radiological features in special groups of cases. Some of the earlier ideas as to the nature and apparent abnormalities in X ray films had had to be discarded, and radiographic appearances varied within wide limits in normal chests. From the point of view of routine diagnosis of lung conditions, perhaps the most important aspect of radiology was the aid it gave in a negative sense in doubtful cases. In this respect the right apex was a constant stumbling block. It was also of value in many cases of chronic bronchitis where the symptoms suggested a coexistent tuberculosis. Reference was also made to the hidden, unsuspected, and otherwise undiagnosable lesions which X rays often detect.

Dr. J. A. WILSON, who followed, stated that if one analysed the cases notified as pulmonary tuberculosis in a district of Glasgow, it would be found that the error in diagnosis, in the best year, was about 33 per cent. For the past three years efforts had been made to evolve a scheme to deal with the increasing number of notifications of cases which were doubtfully tuberculous. While it was perhaps too early to dogmatise, the conclusions come to as a result of the combination of careful X ray and clinical work were: 1. Cases of tuberculosis of the lung have a definite radiological

picture. 2. Hilus tuberculosis is an uncommon disease. 3. Basal lesions are, as a rule, non-tuberculous, the exceptions being those secondary to a chronic tuberculous infection of the abdomen. 4. There may be physical signs of moderately extensive infection of the respiratory tract with no radiological counterpart. These infections are non-tuberculous.

Dr. FERGUS L. HENDERSON gave a demonstration of X ray films and slides illustrating points in radiological diagnosis of tuberculous disease of the lung.

Reviews and Notices of Books.

TROPICAL MEDICINE.

The Practice of Medicine in the Tropics. Vol. III. By many authorities. Edited by W. BYAM and R. G. ARCHIBALD. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 960. £4 4s.

THE third and final volume of this exhaustive work has now appeared, some three years after the first of the series was reviewed in THE LANCET. The subject-matter is diverse: it includes sections on helminthiasis, heat-stroke, disorders of metabolism (deficiency diseases), and diseases of doubtful causation. The section on regional diseases embraces diarrhoeas in the tropics, ophthalmology, and the heart in chronic tropical diseases. The last three sections are devoted to skin diseases, diseases of women, and surgery respectively. The eagerly expected section on helminthiasis is mainly from the pen of Clayton Lane, in parts in conjunction with G. C. Low. It will doubtless be scanned by many a critical eye, for an authoritative account of medical helminthology has long been wanting. Special attention has been paid to the nomenclature, with the result that *Dibothriocephalus latus* has become *Diphyllbothrium latum*, and the familiar *Oxyurus* converted to *Enterobius vermicularis*. It is doubtful whether the original drawings which illustrate this section will convey to the student all that he wishes to learn; to the unzoological eye sagittal sections of trematodes are apt to be misleading. An entirely satisfactory account of human helminthology, written from a medical standpoint, has always presented many difficulties, and this is an advance on any yet extant.

Schistosomiasis is treated in a lengthy article of 76 pages, which is the combined work of six collaborators—N. H. Fairley, A. R. Ferguson, H. S. Houghton, F. C. Madden, P. H. Manson-Bahr, and I. F. G. Martinez. The subject is fully illustrated with beautifully coloured plates, maps, and diagrams. Hydatid disease is discussed from a clinical standpoint by L. E. Barnett, and the surgery of this dangerous condition is fully dealt with. The chapter on ankylostomiasis is from the pen of Bailey K. Ashford. The section on filariasis, by J. W. W. Stephens and Warrington Yorke, contains a summary of the views of authorities on this subject, and the description has in places become controversial. Infection with *Loa loa* (designated *Loiasis*), *Acanthocheilonema perstans* (*Acanthocheilonemiasis*), and *Onchocerca volvulus* are also considered. Disorders of metabolism commences with a useful chapter, by E. E. Waters, on diabetes in the tropics, a subject not usually considered in books on tropical medicine. Deficiency disease, scurvy, beri-beri, epidemic dropsy, and the whole subject of vitamins is dealt with by E. B. Vedder in one of the best chapters in the book. Pellagra, beautifully illustrated, is treated by G. M. Miles. J. A. Arkwright and Sir William Willcox are responsible for the account of typhus fever, and this section, as well as that on Rocky Mountain spotted fever, by B. S. Wolbach, is excellent. An account of trench fever is given by the senior editor, W. Byam, who has already written much on this disease, while we are grateful for an authoritative and modern description of tsutsugamushi disease to the Japanese investigator Mataro Nagayo. Oroya fever and verruga

peruviana are considered together in an article based upon the original work of R. P. Strong. The section on dengue is by J. B. Cleland, while L. P. Phillips, of Cairo, deals with phlebotomus fever. Rabies is presented by W. F. Harvey and A. G. McKendrick; an excellent description of small-pox, by S. Sabongy Bey, is adorned by many telling photographs. Sprue is discussed by P. H. Manson-Bahr, diarrhoeas in the tropics by J. Cunningham, and ophthalmology by R. H. Elliot. R. M. Wilson contributes a chapter on the heart in chronic tropical disease. The section on skin diseases, by A. Castellani and A. J. Chalmers, is mainly remarkable for the beautiful plates by Terzi; scabies is considered in a separate chapter by J. W. Munro. Diseases of Women in the Tropics is by Grace Mackinnon, and will be found full of useful information to the tropical practitioner, who is also well served by the profusely illustrated account of surgery of the tropics, entrusted to F. C. Madden.

The editors may be complimented on having concluded their task in so satisfactory a manner, and on having produced a monumental work which is a credit not only to the science of tropical medicine but also to the practitioner in the tropics.

Laboratory Studies in Tropical Medicine. Fifth edition. By C. W. DANIELS, F.R.C.P., Consulting Physician to the Hospital for Tropical Diseases, and H. B. NEWHAM, C.M.G., M.R.C.P., Director of the Department of Tropical Pathology and Warden of Studies, London School of Tropical Medicine. London: John Bale, Sons and Danielsson, Ltd. 1923. Pp. 576. 25s.

IN hardly any department of medicine is laboratory technique so essential as in the study of tropical disease; a new edition of a book already familiar to generations of students will, therefore, be welcomed. If regarded as an introduction to the subject, and not as an exhaustive presentation, it will be found adequate to its purpose, for laboratory technique is set forth in simple language and in instructive style. The general arrangement of the book in previous editions is maintained, while recent advances in intestinal protozoology and in helminthology receive attention and have necessitated the inclusion of additional illustrations. One adverse comment may be made with reference to the description of the Wassermann reaction. In a laboratory text-book a detailed and intelligible description of a rather elaborate technique might be expected. The method here advocated has not received universal approbation, and a more generally accepted method, such as the one adopted by the Medical Research Council, should have been substituted. The brief introduction to entomology which completes the volume is admirably adapted for the student.

THE TREATMENT OF FRACTURES.

With Notes about a Few Common Dislocations. Ninth edition, revised. By CHARLES LOCKE SCUDDER, M.D., Consulting Surgeon to the Massachusetts General Hospital. London and Philadelphia: W. B. Saunders Company, Ltd. 1923. With 1252 illustrations. Pp. 800. 42s.

AMERICAN surgery has provided us with at least three outstanding monographs dealing with fractures, not the least distinguished of these being Scudder's work which has been repeatedly revised since its first appearance in 1900. At the Massachusetts General Hospital, Boston, where Dr. Scudder himself laid the foundations of the special fracture service which functions to-day, the rising tide of abdominal surgery of the past 20 years has never engulfed this more prosaic but equally important department of surgery.

In the present edition there is the same profusion of useful illustrations and descriptions of varied methods which characterised previous issues of the book. Dr. Scudder has been more than generous to many surgeons in the full reference he has made to the technical advances of the past decade. The question remains whether it is worth while to continue to reproduce the

minutiae of so many different methods of handling and splinting limb fractures. Recent warfare experience has taught us how essential it is that there should be the utmost simplicity both in the enunciation of principles and in the application of the same. For example, in the section dealing with fractures of the femur, we fail to discover Dr. Scudder's own views based on the maturity of his experience. No doubt there are many different ways of obtaining a passably fair result in any given fracture. Many of the popular and conventional methods, however, are known to be technically unsound. Thus we regret to see in this important work the inclusion on a large scale of illustrations depicting the application of flat wooden splints.

Dr. Scudder's book will lose none of its well-deserved popularity, and the influence of the author in the direction of stimulating a better organisation of fracture treatment in hospitals will continue to be felt far and wide.

THE BACTERIOPHAGE.

Its Rôle in Immunity. By F. D'HERELLE, Pasteur Institute. Authorised translation by GEORGE H. SMITH, Ph.D., Assistant Professor of Bacteriology and Pathology, Yale University Medical School. Baltimore: Williams and Wilkins. 1922. Pp. 287. \$4.50.

THIS is an American translation of d'Herelle's well-known monograph, and it is a welcome addition to bacteriological literature, since it sets forth for the first time in the English language the views and work of the author upon the remarkable phenomena now associated with his name. We have already reviewed the original, and the translation differs from it but little, except that Chapter IV., which deals with the essential nature of the agent of the phenomenon, is new. This practically sets forth the arguments advanced by the author at the British Medical Association's meeting last year, and he maintains in the face of all criticism the essential living nature of his bacteriophage. A full bibliography is given and this has been brought up to date. We note the omission of Twort's name, although his work is referred to in the text. The translation has been well carried out, but we must protest against the rendering of "Je l'ignore" as "That must be ignored."

DISEASES OF THE EAR, NOSE, AND THROAT.

Medical and Surgical. Sixth edition. By WENDELL CHRISTOPHER PHILLIPS, M.D., Professor of Otolaryngology, New York Post-Graduate Medical School. Philadelphia: F. A. Davis Company. 1922. Pp. 881. \$8.

THIS work is a well-known standard text-book in the United States. The first part, on diseases of the ear, forms nearly one half of the entire volume; it is well written, beautifully illustrated, and full of helpful detail in just those difficult minutiae for which the practitioner will wish to seek its advice. We have not read anywhere a more lucid description of the intricate subject of testing the function of the vestibular apparatus. Immediate closure of the wound after antrotomy is described under the so-called "blood-clot" method of after-treatment; the author says that "unfortunately the results have not seemed to warrant its general employment," but he makes no mention of immediate suture after sterilising the cavity with alcohol and bipp, a method which has given excellent results in this country. He recommends the practice, in thrombosis of the lateral sinus, of removing the clot located in the jugular bulb with a curette before ligation of the jugular vein, a manipulation which would appear to be highly dangerous. Apart from a few such points, we have nothing but praise for this section of the book. The remaining part is divided into a section on general diseases, including tuberculosis and syphilis, and a final section on diseases of the nose and sinuses, pharynx and fauces, and the larynx. By comparison with the section on the ear, the

remainder, especially the part on the larynx, is somewhat disappointing; it lacks the sure touch and fullness of practical detail marking the former part.

Important subjects are dismissed too quickly for a book of this size; for instance, only five lines are devoted to the surgical treatment of naso-pharyngeal fibromata. The chapter on the diagnosis and treatment of cancer of the larynx is particularly disappointing; of operative methods the author recommends complete laryngectomy for practically all operable cases, and states that laryngo-fissure "can rarely be employed because it is applicable only to cases where the disease is limited to an extremely small area." He mentions a case where the entire diseased area covered less than one-half of the vocal cord; nevertheless, a hemi-laryngectomy was performed, and the patient survived for 14 years. In this country the operation selected would have been laryngo-fissure, the prospect of recovery would have been as good, and the mutilation much less. Dr. Phillips has entirely neglected the brilliant work done in England by Butlin and Semon and their successors. In fact, throughout the book very little reference is made to workers outside America, a fact which, however, is made the subject of a prefatory warning.

PEDIATRICS.

Edited by Prof. E. FEER, Director of the University Children's Clinic, Zurich. Translated and edited by JULIUS PARKER SEDGWICK, B.S., M.D., Professor of Pediatrics, University of Minnesota Medical School; and CARL AHRENDT SCHERER, M.D., F.A.C.P. London and Philadelphia: J. B. Lippincott Company. 1922. Pp. 917. 42s.

THIS large volume should be valuable to those to whom the original German edition is not available. Such well-known writers as Finkelstein, von Pirquet, and Noeggerath are responsible for various sections, which have been translated and edited by American physicians. We regret that the German phrases, even though ponderous, have been rendered in colloquial English, if not actually slang, unsuitable to a text-book. For the rest, though we may hope that the student will still prefer the succinct clinical pictures of the great British teachers, whoever turns to this volume cannot fail to find a mass of valuable knowledge and a very thorough survey of the subject.

ORGANIC CHEMISTRY.

A Method for the Identification of Pure Organic Compounds by a Systematic Analytical Procedure Based on Physical Properties and Chemical Reactions. Vol. IV. By Dr. S. P. MULLIKEN, Associate Professor of Organic Chemical Research at the Massachusetts Institute of Technology. London: Chapman and Hall. 1923. Pp. 238. 30s.

THE fourth volume of this work constitutes a comprehensive record of an arrangement of organic compounds whereby their identification is facilitated. With the publication of this volume the most important portions of the special analytical field with which the "Method" is concerned are so far covered that the chemist who is engaged in the identification of any well characterised, pure organic compound may turn to its tables with at least a reasonable hope of assistance in the solution of his problem, provided the compound has been previously described and possesses some apparent general interest. Volume IV. adds to the "Methods" 14 "orders" or groups of compounds containing new combinations of elementary atoms, and about 3900 additional specific characterisations to the previously completed descriptions. The selection of compounds is the result of a scrutiny of the entire list of compounds mentioned in the last completed edition of Beilstein's "Handbuch" and of the first three volumes of the edition now in progress of publication, and also includes

many other species of evident interest described in the more recent periodical literature.

The greatest care must have been exercised in the compilation of this monumental work, and organic chemists are indebted in no small degree to the author and his associates.

Richter's Organic Chemistry. Vol. III.: Heterocyclic Compounds. Translated from the eleventh German edition by G. E. F. D'ALBE, D.Sc. London: Kegan Paul, Trench, Trübner and Co. 1923. Pp. 326. 25s.

THIS third volume completes the translation of the eleventh German edition of the well-known Richter's Organic Chemistry as edited by Anschütz and Meerwein. It deals in a systematic manner with 3, 4, 5, and 6 membered heterocyclic compounds. The vegetable alkaloids of the pyridine, tropine, cinchonine, morphine, and isoquinoline groups are treated in a fairly comprehensive manner from the structural point of view. It is to be regretted that in most of the references to the published literature the number of the volume only and not the year is given. This lapse in a standard work is to be deplored.

NURSING OF DISEASES OF THE EYE.

A Simple Treatise for Nurses. By JESSIE ELMS, A.R.R.C., Matron, Sussex Eye Hospital, Brighton. London: The Scientific Press, Ltd. 1923. Pp. 70. 2s. 6d.

OF the 70 pages in this book only 13 are devoted to the subject of practical nursing, the rest being an elementary account of the anatomy of the eye, and a list of instruments used in eye operations. Nurses are creditably hungry for knowledge, but we fear that many of them will rise from the perusal of this manual with an unsatisfied appetite. The chapter on methods of treatment is good, so far as it goes, but would be much better if more information were given on the dangers of some of the drugs in common use, and the best methods of avoiding these—we refer more especially to atropine irritation and the roughening of the cornea which follows the careless use of cocaine. The hints about food in the days succeeding an operation for cataract might well be supplemented by details of the food actually given in an eye hospital. As to theatre work, an ophthalmological surgeon would not care to operate with the sole assistance of a nurse whose teaching on the subject was confined to that enunciated in this little book.

THE URETHRA AND THE URETHROSCOPE.

By F. CARMINOW DOBLE, M.R.C.S., L.R.C.P. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 120. 10s. 6d.

THE increase in venereal disease associated with the war has brought with it a flood of new books on the subject of its diagnosis and treatment, and during the last three years a great many reviews of new text-books on venereal subjects have appeared in these pages. With the exception, however, of Luys's "Cystoscopy and Urethroscopy" and a small manual by Dr. Norman Lumb, few books written in the English tongue have devoted themselves to the subject of urethroscopy. This little volume by Dr. Doble deals entirely with urethroscopic methods of diagnosis and treatment. Lesions of the urethra and their pathology are only described in so far as they have a bearing on urethroscopy, and the only methods of treating chronic gonorrhœa given are those which are applied through a urethroscope. The first portion of the book is devoted to descriptions of different models of anterior urethroscopes, all of these, with the exception of Luys's and Vallentine's, instruments being of British design and manufacture. Amongst urethroscopes for the posterior urethra the author includes descriptions of the Wossidlo-Goldschmidt, Luys, Wyndham

Powell, and Swift Joly instruments. In addition to these is a special adjustment designed by himself which may be fitted to the anterior urethroscope, manufactured by the Holborn Surgical Instrument Company. This consists of a long, straight tube, an elbowed obturator to facilitate its introduction into the posterior urethra, and a longer lamp bracket so that the illumination may be brought to the end of the examining tube. Dr. Doble apparently does not consider that water distension is an essential to satisfactory vision in the posterior urethra, and here there will be many who will join issue with him. The descriptions of the different instruments are clear and precise. The work, moreover, has been well illustrated and contains, in addition to drawings of instruments, coloured plates showing the commoner lesions of the anterior and posterior urethra. It is certainly the best guide to urethroscopy that has appeared from the pen of an English writer, and its general get-up and finish are excellent.

JOURNALS.

QUARTERLY JOURNAL OF EXPERIMENTAL PHYSIOLOGY. Edited by E. SHARPEY SCHAFFER and others. Vol. XIII. No. 1. Pp. 1-103. London: Charles Griffin and Co., Ltd. 10s.—The Action of Extracts of Endocrine Glands upon Motor Nerve and Skeletal Muscle, by Misao Yoshimoto. Extracts of the pituitary body—anterior and posterior lobe—pineal gland, brain matter, thyroid, parathyroid, thymus, suprarenal, testicle, ovary, and also choline hydrochloride, histamine acid phosphate, tyramine acid phosphate were applied to the isolated nerve and to the sartorius muscle of the frog. The results show that there is but little reason to suspect any specific physiological effect of the endocrine glands on motor nerve or striated muscle. The restoration of nerve function in Ringer's fluid after being affected by these substances is generally complete, while that of muscle is not uniformly so.—The same author describes the Action of the Blood Serum of Animals in Tetania Parathyreopriva on Motor Nerve and Skeletal Muscle. The frog's sciatic nerve and sartorius were used. The serum of thyreo-parathyroidectomised dogs and cats produces some increase of excitability in the isolated nerve of the frog, but has no special effect on the contraction of isolated muscle. The serum of both thyroidectomised and normal dogs and cats has practically no effect on frog's nerve. A solution of guanidine carbonate causes some increase of nervous excitability. Taken in conjunction with the results of other workers on tetany, the author concludes that the serum of animals in a condition of tetania parathyreopriva may contain some exciting substance which is present in just sufficient amount to affect the excitability of motor nerves, but not of muscles. Some guanidine-like body may be the agent in producing the hyper-excitability of peripheral motor nerves in tetany.—Effects of Lowering the Temperature in Homiothermic Animals, by S. W. Britton.¹—A Method for Recording Gastric Secretion in Acute Experiments on Normal Animals, by Robert K. S. Lim. The most suitable animals are cats and dogs, especially cats, and the experiment is best performed on chloroformed animals at or shortly after the time of the usual morning meal, a procedure which ensures that the stomach is empty and that the glands are in a normal state of repletion. A perforated glass cannula is introduced into the stomach through the pylorus to drain the stomach of its juice, which is allowed to activate a drop-recorder after its escape from the organ. A balloon is also inserted into the stomach to serve as a control of motor changes. The method permits of observation being made on the latent period, and the duration and quantity of the secretion after the introduction of a suitable excitant. The juice thus obtained invariably contains free HCl and pepsin.—The Question of Gastric Hormone, by

Robert K. S. Lim. Using the method just described, extracts of the fresh organs employed were administered through the external jugular vein of cats. The author confirms the observations of Eddins regarding pyloric extracts and their effects in causing gastric secretion. Extracts made from the cardiac and duodenal mucous membranes are less active; fundus extracts are comparatively inert, while jejunal and ileal extracts are ineffective. Histamine causes gastric secretion when injected intravenously. Adrenalin does not inhibit the secretion provoked by the substances named, but may delay outflow from the stomach. Adrenalin excites secretion in some individuals. The distribution of the gastric excitant or gastrin in the stomach and duodenum corresponds with the distribution of mucoid glands; it is suggested that the excitant is extracted from mucoid cells. The blood of fed animals has no effect on gastric secretion when transfused directly or indirectly. Since there is no exciting substance in the blood after meals, it is concluded that the excitant found in the pyloric and other extracts is not secreted into the blood-stream, and the mechanism of secretagogue action is not due to internal secretion.—Does the Depressor Nerve Contain Efferent Fibres? E. Sharpey Schaffer and M. L. Walker find that the depressor contains no efferent fibres, but is purely afferent.

ARCHIVES OF INTERNAL MEDICINE. March, 1923.—J. H. Means and G. W. Holmes (Boston) report two series of cases showing the effect of Rontgen ray treatment of toxic goitre. Cases of toxic adenoma and exophthalmic goitre are dealt with and evidence is produced of the beneficial effect of X ray therapy. The report is one of a series emanating from a thyroid clinic in which there is close co-operation between internist, surgeon, and radiologist.—L. Kessel, C. C. Lieb, and H. T. Hyman (New York) describe the clinical course of exophthalmic goitre based on the observation of 50 fully developed cases. A uniform plan of treatment was adopted; it consisted of rest, high caloric diet, the best obtainable hygienic and psychic conditions, and the administration of syrup of ferrous iodide. A marked tendency to recovery, sometimes interrupted by relapses, was observed.—W. J. Kerr and G. C. Hensel record observations on the cardiovascular system in thyroid disease, with special reference to the types of irregularity revealed by means of electro-cardiograms and polygraph tracings. Of the 181 goitres studied, 123 are classified as adenomas and 58 as hyperplasias. Auricular fibrillation or flutter was present in about one-third of all toxic cases. Prognosis and treatment are discussed.—L. E. Viko, H. M. Marvin, and P. D. White (Boston) contribute a clinical report on the use of quinidine sulphate. They show that the response to quinidine is better in recent cases and in those without circulatory congestion, and it is less likely to be permanent in those with ectopic beats. Sex, age, valvular disease, and, in regard to the nature of the disease, arterio-sclerosis compared with rheumatism, are not factors which determine the response to quinidine.—N. C. Gilbert (Chicago) shows the increase of certain vagal effects with increased age.—E. P. Carter and H. J. Stewart: Studies of the Blood Gases in a case of Paroxysmal Tachycardia. Marked decrease of the oxygen saturation and extremely low carbon-dioxide content of the arterial blood and low oxygen saturation of the venous blood were found.—W. L. Rogers (San Francisco) contributes a note on the correlation of vital capacity with stem height.—A case with enlargement of hæmal nodes is reported by M. Lederer (Brooklyn).—A case of rheumatic fever with cerebral symptoms simulating encephalitis lethargica is reported by L. F. Frissell (New York).—W. J. Fetter (Pittsburg) describes a gravimetric method of estimation of phosphates in the blood, and discusses their retention in nephritis.—M. Bodansky and M. D. Levy (Galveston) discuss some factors influencing the detoxification of cyanides in health and disease.

¹ We comment on this paper in our annotation columns.

THE LANCET.

LONDON: SATURDAY, APRIL 21, 1923.

CONTRACT MEDICAL PRACTICE.

INCREASED remuneration is the only point in favour of the panel system. This is the conclusion reached by an experienced practitioner in a rural area, whose interesting letter we print on p. 819. He is comparing the present medical service under the Insurance Acts with the old club system, more especially that of the friendly societies before the year 1911, and his letter deserves careful thought at this juncture. It is an able, sympathetic, and humane statement from one with understanding. We would suggest, however, that the advantage of the capitation basis of payment lies not so much in the amount of the remuneration as in the manner in which it is paid. When the medical benefit clauses of the first National Health Insurance Act came into operation the doctors in each insurance area were asked to choose the method by which they were to be paid. The great majority chose the capitation system, only a few areas adopted payment per attendance, and all of these, after the experience of one quarter, gave it up in favour of capitation with a single exception—namely, the Manchester and Salford area. In the light of the experience now gained, the virtues of the capitation system can be set out thus. The system fixes the responsibility of the practitioner for certain insured persons on his list. The practitioner takes the risk for providing medical treatment for those of his insured persons when they fall ill. The amount of illness varies with the character of the industrial population in the neighbourhood, with the housing conditions and other economic factors due to fluctuations in trade. The risk is correspondingly greater if these conditions are bad, and it is to the doctor's interest to help in improving the environment and conditions of life of the industrial population in his midst. To the insured persons who are ill he can give unrestricted attention, concentrating on the medical aspect of the case without any anxiety as to the financial position of the patient, or any fear of an unpaid bill. He can within the range of human possibility and endurance give them his very best. In regard to those who are not ill but who consult him for trivial or incipient illness, he can interest himself in their personal hygiene, in the nature of their employment, and in their mode of living, and so do real preventive public health work. The commercial side of his practice comes less and less into evidence and the professional side gains more and more in importance. The fixed remuneration enables the practitioner to live in comfort and gives him a wholesome sense of security.

The dangers of the capitation system are those of any system of insurance payment. It provides the scope and, in certain cases, the incentive for the practitioner to neglect his work. It encourages him to get through the necessary work hurriedly and perfunctorily and teaches him to avoid all unnecessary work. This is true of the unprincipled man who is shirking his responsibilities and from whom nothing but shoddy results could be secured by any method of

payment. It is also true of the victim of circumstances who lives in a neighbourhood understaffed with doctors, and who has to accept greater responsibilities than he can cope with either mentally or physically. But the same will hold true by the payment per attendance system under similar conditions. The one advantage claimed for the Manchester system is that it would secure adequate medical attention and make neglect impossible; but it cannot and does not prevent the unprincipled man from multiplying his attendances and visits and reducing each attendance to the most perfunctory service given in the minimum of time. The grave disadvantage of such a system is that the practitioner is not so concerned to keep his patients well; he is deprived in some measure of his interest in the health of the community. To abolish the capitation system would be to exclude the practitioner from the field of preventive medicine.

In contrasting the panel system with the club practice of olden days our correspondent writes: "We dealt with brothers then, we deal with material now." But is the change in the doctor or in his patients? True the old club members were thrifty and provident, while the insured person may be the unwilling contributor to a scheme which he appreciates only in so far as it gives him something tangible in return. Thus he is out to get all he can and to get it in the most material way. He has no sense of assisting in any great scheme to help his invalid comrade. In truth, he has no brother, because he has lost all sense of brotherhood. These people may make themselves seen and heard; there is no evidence that they constitute the majority of insured persons. On the professional side men without any real concern for the public weal and with a poor sense of their own obligations are to be found. They were in the medical profession before the Insurance Acts were passed, but the panel system has brought them into the light. By education and by discipline we may hope to temper these inimical factors. Much may be expected from the new generation of medical men and women, trained in social welfare. The panel system has weathered the storms of a great war and is now contending with the equally severe trials of an unsettled peace. It has great and undeveloped possibilities as an instrument of public health. Private practice will not and should not be superseded by it; there will always be abundant scope for individual practitioners, but the urgent need of the moment is for an army of practitioners of preventive medicine; this the panel system provides, and provides also, if its potentialities are properly recognised, for inter-professional coöperation in every direction. This country is now too urbanised to make possible any return to the actual conditions which RUSTICUS has recalled to memory, with their charms and their drawbacks. But there is nothing to prevent a return to the spirit which infused these conditions in the countryside, save a vague but prevalent distrust. And for the growth of this, unfortunately, the immediate future will furnish a fruitful soil. The approaching responsibility on the Ministry of Health is a very serious one.

DRUG RESEARCH IN INDIA.

INDIA has played a large part in research and discovery in the field of tropical medicine. LEISHMAN, ROGERS, ACTON have left indelible marks on medical history. An organised attempt is now being made to perfect the Calcutta School of Tropical Medicine.¹

¹ THE LANCET, April 7th, p. 728.

One branch of the work suitable for the school was advocated by CHOPRA and GHOSH in a recent lecture before the Medical Section of the Asiatic Society of Bengal—namely, research in Indian indigenous drugs. The work which ACTON, working in India, has done on cinchona may be extended to Indian drugs. To the layman estimating the value of the medical profession nothing is more astonishing than the fact that the doctor does not know if many of his drugs act or not; further, this ignorance does not apply only to harmless but also to potent ones: belladonna, which for years has been given to suppress lactation, is now said to have no action on a gland which has hormone and not a nerve activity; morphine, which is given in suppository form after rectal operations, is now known to have no local action. While much exact experiment has been done on synthetic drugs, less has been done on galenical preparations. The work is laborious, the results are small. We have only to look at the excellently illustrated medical botanies of a hundred years ago to realise how nearly all our plants have been used medicinally; any one of these botanies will, in fact, form a good modern guide to the flowers of the field.

India, too, has used and is using many of its plants for medicinal purposes, but there is more hearsay and less experiment in its choice than in Western countries. In the lecture referred to suggestions are made as to lines which research may follow. First, there are new drugs to be discovered and new uses to be applied to old ones. It is interesting speculation to consider, if all our useful drugs—opium, belladonna, cinchona, caffeine—were suddenly forgotten, whether they would be rediscovered, and how soon. Probably there are others just as potent which have never come to light, and possibly they are without drawbacks which our present drugs possess. Others may have actions more potent than those for which we now use them; digitalis was long used for certain forms of epilepsy before it was reintroduced for dropsy, and it was by exact clinical work it was found to be effective in cardiac dropsy. In all the rich foliage of India, in all the herbs used by the wise men of India, some new preparations are to be found as soon as scientific search is made. Secondly, money can be saved by substituting drugs found at home for better-known imported ones; this is a matter of moment in a country with many of its inhabitants so poor that they cannot afford to buy common drugs such as quinine, castor oil, and magnesium salts. The powdered flowers of a variety of *Artemisia maritima* which grows in the Himalayas is said to form an excellent substitute for the expensive santonin; this is the active principle of the Levant wormseed, a variety of plant which grows in the wildest parts of the Russian steppes and which has so far been the only one known to produce the active principle. Several of the medicinally active species of strophanthus are indigenous to tropical India, and many indigenous members of the Ipomœa family contain jalapin and convolvulin.

The action of drugs can be tested scientifically and exactly only when active principles have been extracted, but when once this exact knowledge has been attained the use of crude drugs is the keynote of cheapness; the use of cinchona febrifuge, a crude drug preparation, works, as shown by ACTON, both for efficiency and economy as compared with quinine. But the scientific examination of drugs is a laborious process in which the chemist plays as important a part as the medical man. It would be well, then, for research to be started on plants to which folk-lore ascribes healing power in definite diseases. No better example of this can be given than the discovery and application of

ethyl ester of hydnocarpic acid, the active principle of chaulmoogra oil, which has put the treatment of leprosy onto a sound basis. Indian pharmacology has a great future, and the Indian student should welcome the responsibility of the accompanying researches.

PRESERVATIVES IN FOOD.

THE use of chemical preservatives and colouring matters in food has long attracted the attention of public health authorities. In the year 1899 a Departmental Committee was appointed to inquire into the whole subject, and after more than 4000 samples of foodstuffs had been analysed at the Government laboratory a report was issued in 1901. It then appeared customary to add preservatives to a large number of food commodities: Salicylic acid or formalin in the case of cream; boric acid in the case of butter, margarine, bacon, and preserved meats; boric acid, salicylic acid, or sulphites in the case of jams, lemon juice, and non-alcoholic drinks. Cheese, condensed milk, lard, preserved fish and vegetables, sugars, and spices were found to be free from preservatives. The amount of preservative ranged widely: Boric acid in meats from 15 to 66 gr. per pound, salicylic acid in drinks from 1.5 to 19 gr. per pint. While this much was ascertained, there was a feeling among experts at the time that the total extent of the practice was not revealed to the Committee, inasmuch as many commodities were not sampled by the officers of local authorities. The Departmental Committee made certain definite recommendations—namely, the absolute prohibition of formalin in any form and of all preservatives in milk, and the restriction of salicylic acid and boric acid within prescribed limits. They were of opinion that salicylic acid when added should be declared to the purchaser, and that no preservative whatever should be added to foods intended for invalids or infants. The report was circulated and attracted wide attention but, in the easy fashion of the time, was not embodied in legislation. The only official action taken on the recommendations was the issue of the Cream Regulations (1912 and 1917) limiting the amount of boric acid or hydrogen peroxide which might be added to cream, and making obligatory an announcement on the label.

And so the position has remained until now. Two London medical officers of health have recently advised their public health committees that something more should be done. Dr. C. W. HURT (Holborn) points out that in the 20 years or more which have elapsed since the Departmental Committee reported considerable scientific progress has been made, and that it would be reasonable now to enforce a declaration of the presence and amount of any preservatives added to food and to set up definite maxima which must not be exceeded. The action of sanitary authorities is now hampered by the conflicting views on the use of preservatives. A case recently taken before a Metropolitan police magistrate, in which 2 gr. of salicylic acid per pint were shown to be present in a drink, was dismissed with costs, although it is believed that salicylic acid in this small quantity may have injurious effects on digestion. Local authorities can at present only take legal proceedings against the retailer, although it is in most cases the manufacturer who actually adds the preservative. The recommendations of the Departmental Committee have been regarded in certain quarters indeed as establishing a sort of right on the part of food dealers to add chemicals. Dr. REGINALD DUDFIELD

(Paddington) reports that the routine addition of any chemical preservative to foodstuffs is unnecessary in these days of rapid transit, and would limit their use to special cases under stringent regulation. While admittedly the quantity of any drug used for preserving, taken with one food, is likely to fall below the toxic dose laid down by the Pharmacopœia, nevertheless the effect of preservatives on the digestive tract may still be deleterious. The action of some of these is known to be cumulative while individuals are intolerant to others, and their effect is especially liable to fall on sick persons and young children. Moreover, the danger is always present that preservatives may be used to disguise incipient putrefactive change or to counteract the results of lack of care in preparation. It would be easy, as Dr. DUDFIELD points out, to construct an imaginary meal which should contain an amount of preservative much in excess of the pharmacopœial dose of the drug used.

Evidently the time has come when further inquiry is advisable into the subject of preservatives in food, particularly in view of the wider use made of many of the articles since the 1901 report. The Ministry of Health has already, of course, power to make regulations under the 1907 Act, but the hands of the Ministry would be strengthened by exact knowledge of the effect of adding preservatives (a) on the food itself, with special reference to vitamin content, and (b) on the consumer. An investigation of this nature might be referred to the Medical Research Council with liberty to make inquiry as to methods of preserving food other than the addition of chemicals. A number of manufacturers now use no preservatives, and the ignorance among those who do use them as to the quantity required is pertinently shown by the wide range of a table published in Dr. DUDFIELD'S report, where he summarises the replies received from 95 sanitary authorities. At present control of preservatives is too largely dependent on the views of individual magistrates, some of whom take up an enlightened attitude, while others are apparently indifferent to the risks involved. The uncertainty whether magistrates will accept or reject the recommendations of the Departmental Committee has paralysed the efforts of sanitary authorities to the extent that in five administrative counties and 13 county boroughs no sampling whatever has been done for the discovery of preservatives during recent years. We are indebted to these two medical officers of health for pressing upon the community a matter of great importance to the public health.

THE TEACHING OF OBSTETRICS AND GYNÆCOLOGY.

AN addition to the series of Reports on Public Health and Medical Subjects, which is being published at intervals from the Ministry of Health, is written by Dr. Janet Campbell, senior medical officer for maternity and child welfare to the Ministry, and consists of notes on the arrangements for teaching obstetrics and gynæcology in the medical schools. This is the first time that a complete review of the subject has been published, and our readers will find it a valuable survey. They must be familiar with the numerous criticisms which have been recently, and many of them justifiably, passed upon the methods of instruction in these subjects, and we propose to deal at length in a forthcoming issue with Miss Campbell's conclusions and recommendations.

Annotations.

"Ne quid nimis."

TRAVEL AND INFECTION.

THE U.S. Public Health Service *Bulletin*, No. 129, on Communicable Diseases and Travel, written by Dr. Thomas R. Crowder, contains matter useful for the education of the public in modern ideas of how infection is spread. In an introduction, Dr. Victor Heiser emphasises the change in the problem brought about by swift steamships, trains, and airships, and alludes to Dr. Crowder's long experience in railway and steamship sanitation. In an appendix are given the Interstate regulations, promulgated by the Secretary of the Treasury, governing the transportation from State to State of persons infected with communicable diseases. In 1920 a Standard Railway Sanitary Code was approved by the U.S. Public Health Service and recommended for adoption by all the 48 States. Up to the present 20 States have adopted it. This is an important step towards uniformity. Briefly, the regulations forbid the travel of persons suffering from plague, cholera, yellow fever, typhus fever, and small-pox, and allow persons suffering from other infectious diseases to travel under proper supervision. Putting aside tuberculosis and venereal diseases, proper supervision means the conversion of one part of the train into an isolation cubicle with a skilled attendant in charge of the patient, and adequate arrangements for dealing with infectious discharges and food utensils, and for cleansing the improvised "hospital cubicle" after use. It is obvious that conditions are quite different with us and that the need for persons ill with infectious diseases to be conveyed by train very seldom arises in our densely populated country, since infectious diseases hospitals are everywhere within easy reach by motor ambulance. In discussing the reasons for the regulations, Dr. Crowder deals with many points of universal interest. For example, "fomites" are relegated to a place of small importance, and contact with infected secretions while they are still fresh and virulent is regarded as the essential danger. Dr. Crowder points out, however, that "to control the habits of the individual to the end that he may not contaminate with his secretions the things that are about him is a very difficult matter." Dr. Crowder shows that the travelling of consumptives in search of a climate that may cure them is a serious consideration. The National Tuberculosis Association estimate that annually 10,000 consumptives who are hopelessly diseased go into the West to die. Many other hopeless cases return home to die from the West. Many travel about from one resort to another. Dr. Crowder does not think the danger is great either from the "spray" of a tuberculous traveller or from the car and its furnishings after the tuberculous traveller has left it; the danger is greatest to children from their exploring habits and consequent hand-to-mouth infection. Statistics in the U.S.A., so far as they go, show lower tuberculosis death-rates among the railway employees on passenger trains than among those on freight trains. It appears that the things to be avoided are large doses of tubercle bacilli and their frequent repetition.

The regulations of the Standard Railway Sanitary Code apply to pulmonary tuberculosis and prescribe the use of a sputum cup, gauze paper for coughing into, a bag for soiled paper, the obligation to destroy this paper afterwards, and so on, but obviously the carrying out of these precautions depends upon the sanitary conscience of the tuberculous traveller. Lepers may travel with an attendant and under the usual isolation restrictions provided they have a permit from the Health Department of the States from which and to which they are travelling. Notified cases of venereal disease require permits, chiefly for the purpose of securing continuity of treatment. In discussing the danger from syphilitic sores, Dr.

Crowder says that the common drinking cup and common towel "now fortunately belong to the past." That is not so in this country, and common towels may still be seen in the lavatories of London hotels and restaurants of quite good standing. Dr. Crowder thinks the transmission of venereal disease by the toilet seat is probably a rare occurrence. The regulations in America have to make provision for cases of infectious disease discovered en route, perhaps on long journeys and far away from a hospital. Owing to the prohibitive cost and the very different circumstances obtaining in this country, arrangements for the travelling of persons suffering from ordinary infectious diseases are hardly likely to be made, but this *Bulletin*,¹ as a statement of the modern view as to how infection is spread, is well worthy of perusal.

THE FELLOWSHIP OF MEDICINE AND POST-GRADUATE TEACHING FOR LONDON.

At a meeting of the Fellowship of Medicine, held on April 13th at the Royal Society of Medicine, a scheme brought forward by the non-undergraduate hospitals in London was accepted and immediate steps will be taken to put it into operation. It is devised to meet the needs of two classes of post-graduate students—namely, those requiring short general "refresher" courses, and those requiring advanced courses in the special departments of medicine and surgery. It is proposed to arrange the former courses on the group system, centred on a general non-undergraduate hospital, to be affiliated with special hospitals in its neighbourhood, and each group should be responsible for three or four such courses during the year. It is hoped that four, or perhaps five, of these groups will be founded in London. The programme will be begun by a course at the Prince of Wales's General Hospital, Tottenham, assisted by the special hospitals belonging to the North-Eastern group, from June 11th to June 23rd. Further details regarding this course, and others to follow throughout the year, will be published shortly. For graduates requiring more advanced instruction it is proposed that each of the special hospitals should undertake two or three courses during the year, and it is hoped that specialists from the undergraduate hospitals will be willing to come to the special hospitals on the invitation of the staff, and to assist in lectures and demonstrations.

THE PHYSIOLOGICAL EFFECTS OF EXPOSURE TO LOW TEMPERATURES.

In a recent communication to the *Quarterly Journal of Experimental Physiology* (Vol. xiii., No. 1), S. W. Britton describes experiments on the effects of lowering the temperature in homoiothermic animals. The cooling apparatus employed is described and practically all the results were obtained on cats placed in a double-walled chamber, at a temperature of 5° to 8°. In the process of lowering the temperature of these animals there is a progressive paralysis of the central nervous system. In recovery a definite order of reappearance of reactions occurs at different deep rectal temperatures—e.g., knee-jerk and micturition reflexes, 16°; shivering reflex, 19.5°; clawing and winking reflexes, 21.5°; light reflex, 23°; equilibrium, sight, smell, and hearing, 27.5°; and coördinated action (walking, &c.), 28°. In the initiation and subsidence of stepping movements at low temperatures, a definite march or order is observed. A regular alternation between shivering and inspirations occurs between 22° and 24°. Exaggerated tonic spasms of the postural musculature occurs when the temperature of the recovering animal stands between 21° and 25°. In its progressive effects gradual cooling shows a strong similarity

to the induction of anaesthesia, consciousness becoming abolished gradually and finally disappearing between 27° and 25°, while the ordinary reflexes are still maintained (24°–19°). At low temperatures (19° or 20°) the pupil becomes contracted, to dilate widely just before death. No condition resembling "artificial hibernation" can be said to occur when a homoiothermic animal such as the cat is reduced to very low body temperatures; a definite thermogenic ability is retained even at 19°, from which temperature spontaneous recovery is effected in 10 to 12 hours. The activities of the heart, respiratory muscles, and abdominal viscera are probably wholly responsible for an initial small rise in body temperature, but spontaneous shivering and stepping movements and an exaggerated muscular tonicity occurring about 20° are the chief factors in heat production and hence in recovery of the animal. So far as the author could determine, death from exposure to cold is due to paralysis of the respiratory centre in the medulla oblongata.

THE NEED FOR MORE AMBULANCES.

The circumstances at a recent inquest held by the coroner for Westminster have led to a wide discussion in the press as to the need for more ambulances in the metropolis, but many of the suggestions made have shown unfamiliarity with the present position. The three authorities in London who direct ambulance services are the London County Council, the Metropolitan Asylums Board, and the St. John Ambulance Association, each authority catering for a separate and distinct type of case. The London Ambulance Service, directed by the London County Council, conveys, at any hour of the day or night, persons suffering from accident or sudden illness from the streets or public places, such as railway stations, theatres, factories, and workshops, to hospitals, infirmaries, or their homes. Although cases of accident occurring in private houses are accepted, the service is not intended for the removal from private premises of persons suffering from illness; when, however, in such a case the caller states that the life of the patient would be endangered failing immediate removal to a hospital, the call is at once accepted. The Metropolitan Asylums Board service deals with all cases of infectious illness, while the St. John Ambulance Association deals in consultation with the police with first-aid cases arising out of processions and public ceremonies. Both these services also convey cases of non-infectious illness where there is no urgency. The County Council ambulance service is served from seven stations, and the establishment of three additional stations has recently been authorised; it is hoped that when the latter are in use the time taken to reach cases (average during 1922, 8.7 minutes) will be considerably reduced. At each station a motor ambulance, equipped with first aid appliances and with a crew of two trained attendants and a driver, is constantly in commission, while during the busy hours of the day two stations have an additional ambulance. Although the majority of telephone calls are given by the police, a private individual can summon an ambulance. The telephone exchange is asked for "Ambulance," and no number is required; the place of the accident or illness should be stated, together with the caller's name. No charge is made for the call or for use of the ambulance. Since the inception of the service the number of calls has steadily increased from 2405 in 1915 to 23,966 in 1922; the average daily number of calls is now about 70. The chief officer of the London Fire Brigade is the officer-in-charge of the Ambulance Service, which is directed from the headquarters of the Brigade in Southwark Bridge-road, S.E. 1. The operative staff numbers 97. The estimated cost of the service for the year ended March 31st, 1923, was £34,470.

The case we have quoted may be added to other recent incidents which call attention to the insufficient

¹ Government Printing Office, Washington. 10 cents.

number of ambulances available for cases of sudden need in the vast area of London. Until more ambulances are available it is clear that there must be regulations for restricting their use. There would certainly have been justifiable complaint, for example, had a person run over by accident in Trafalgar-square been kept lying in the road for a quarter of an hour or more, because a policeman had authorised the use of an ambulance to convey from his hotel to a hospital a well-to-do citizen who was afterwards found to have little the matter with him. For a medical man to vouch for the urgency of a particular case is, of course, a different matter; and it must be remembered that in the case referred to above when the ambulance was summoned it came at once. Moreover, if the public demand the provision of more ambulances the public must be prepared to pay for them, recognising, on the one hand, that they are costly to purchase and will not be continually in use, and, on the other hand, that a better service will ensure more rapid attention and save more lives.

HENRY ARNOLD BECKETT.

NEARLY 30 years ago there died, while at his work, in the office of THE LANCET, Mr. Henry Arnold Beckett, who had been connected with the paper, first in the printing, and later in the editorial departments, from boyhood. The announcement which has recently been made that THE LANCET would celebrate its centenary in the autumn of this year, has brought us a letter telling us that the elder sister of the late Henry Beckett is still alive and that her hundredth birthday follows by only a few weeks the hundredth birthday of THE LANCET, she being some two years older than her late brother. Beckett's association with THE LANCET was an extremely intimate one. He was brought over from the printing department by the original Thomas Wakley, who had been attracted by his extraordinary gift of memory. He was made a sort of universal proof-reader for the Editor, and in the course of his duties became an absolute dictionary of information on professional subjects. He knew the names, addresses, qualifications, and professional and literary records of hundreds of medical men. He supervised the indexing of THE LANCET for years, and his recollection of the contents of back numbers was extraordinary. He had no medical training, but a wide, if theoretical, knowledge of medical science had been obtained in two ways. First, his large and variegated reading was so carefully performed, and with such attention to the author's meaning, that much of the essential teaching was made his own, and was ready for addition and modification. Secondly, the interviews which he had had with medical authors concerning the contents of their papers were always turned by Beckett into opportunities for increasing or revising his knowledge. On the occasion of his death many letters reached us from contributors to our columns acknowledging indebtedness to Beckett for important literary assistance.

THE ABORTIVE TREATMENT OF SYPHILIS.

In a paper read at a meeting of the Nordisk Dermatologisk Forening in Stockholm and published in *Hospitalstidende* for Feb. 21st, Dr. H. Boas has given an account of his experiences of the abortive treatment of syphilis. Such abortive treatment he defines as the radical cure, by one or more courses of treatment, of syphilis in its first stage. The first question to be asked in this matter is: When can it be said with certainty that abortive treatment has effected a radical cure? The answer is tantalising: The only reliable evidence of a radical cure is, in the experience of Dr. Boas, reinfection. Without this retrospective evidence of a complete cure, the patient cannot be assured of recovery, however early and thoroughly he may have been treated. All may seem to be well after such early treatment, but years later—even as

many as seven years later—a relapse may occur. All the patients included in Dr. Boas's statistics were observed for two years or more after the completion of treatment. The first series consisted of 245 patients, each of whom was given one intramuscular injection of 60 cg. of salvarsan, one intravenous injection of 40 cg. of salvarsan, and 50 inunctions of mercury. Of these 245 patients, 153 were Wassermann-negative and 92 were Wassermann-positive before the institution of treatment. Among the Wassermann-negative cases there were 12 relapses, and among the Wassermann-positive cases there were 10 relapses from six months to between seven and eight years after treatment. In a second series of cases there were 75 patients, each of whom received one intramuscular injection of 60 cg. of salvarsan, one intravenous injection of 40 cg. of salvarsan, 50 inunctions of mercury followed by intermittent mercurial treatment for three years. There were 47 Wassermann-negative and 28 Wassermann-positive cases in this series and, curiously enough, the four patients who relapsed all belonged to the group that was Wassermann-negative before specific treatment was instituted. In a third series of only 22 cases, each patient was given four injections of silver salvarsan (15, 20, 25, and 25 cg.), 50 inunctions of mercury, and intermittent mercurial treatment for three years. In this series no relapse had occurred within two to three years of treatment. Dr. Boas considers as quite unwarrantable the opinion of certain German authorities who have taught that when the patient is clinically and serologically symptom-free for two years after a course of abortive treatment, he may be considered as perfectly cured. He may be, but he cannot feel sure. It is not yet certain that supplementing the original course of abortive treatment with salvarsan and mercury by intermittent mercurial treatment for three years adds appreciably to the chances of eradicating the disease, but Dr. Boas is inclined to favour this three-year course, although the guarantee it affords is not absolute.

COMPOSITION AND STYLE.

HE who puts forth a treatise, however modest, on composition and style, and he, however informed, whose task it is to review such a work, are alike in the position of egg dancers—surrounded by traps which it is their duty to escape. Even such an expert as Sir Clifford Allbutt in the use and arrangement of words, so well-versed an exponent of the finest method of delivering a literary message, may break a yolk; but those who attempt to sit in judgment may make an omelette. However, in this admirable little book¹ we have found but one slip in the middle of most valuable counsel to medical writers. That the style of writing in many scientific papers is often bad is the sad truth. To express ideas and experiences in a lucid manner is by no means an easy task, and many a scientific paper whose matter is excellent loses value because the writer has not learned to convey his knowledge to others. "Have something to say, and say it as clearly as you can. That is the only secret of style," was the dictum of Matthew Arnold to G. W. E. Russell, but *belles lettres* only were in question. Writers of scientific papers must all be credited with something to say, not for its beauty or æsthetic qualities but for its utility. Therefore the actual matter is not adaptable or flexible. All the more necessary is it that the something should be said clearly, and a study of Sir Clifford Allbutt's book will be of the first assistance to the acquisition of the desired clearness. He tells authors what to avoid and at what to aim, and in one instance at least has himself fallen into the pit. Under the heading "Precision," he writes as follows: "The seat among the immortals of letters prepared for Tennyson may, for its ungainliness and its antics, be denied to the more vivid and penetrating muse of Browning." It

¹ Notes on the Composition of Scientific Papers. By the Right Hon. Sir T. Clifford Allbutt, K.C.B. London: Macmillan and Co. 1923. Pp. 187. 6s.

is not difficult to see Sir Clifford Allbutt's meaning, but in strict grammar he has made that stationary thing, a seat, rise and gambol. We point to this sentence as an example of how fatally easy it is, even in a treatise on composition, to fall into error. Is there not the classic example of the schoolmaster who wrote on the black-board, during a lesson on composition, "Never use a preposition to end a sentence with."

This is the third edition of a work which has proved valuable and suggestive to many. The sections on the misuse of words and on the use of simple words, are particularly admirable and remind us how many of the great passages of English literature are made up almost entirely of words of one syllable. The Prayer Book version of the Psalms, which we trust will be spared to us, is full of such, and so is the Authorised Version of other Books of the Bible, to take one example from either: "I will lift up mine eyes unto the hills from whence cometh my help"; and again, "Come from the four winds, O breath, and breathe upon these slain, that they may live." It is by studying language such as that, and also by reading the works of the masters of scientific expression such as Newton, Huxley, Faraday, Tyndall, Watson, and Trousseau, among the dead, that a writer of scientific papers may learn to express himself so as to impart his knowledge to others. We decline the task of selecting living models; it would be as arrogant a proceeding as an attempt to indicate which of the leaders now with us hardly do their matter justice in the form in which it is presented.

ANTI-ANTIBODIES.

WHEN it was first realised that the introduction into an animal of a native proteid coming from any other species of live thing was often followed by the production of specific antibodies, people toyed a good deal with the idea that the reaction might lead to great complexities. If the host produces antibodies to the proteids of the parasite, it was not unnatural to assume that the parasite might elaborate antibodies to the proteids of the host and, among others, to the host's antibodies. To these anti-antibodies produced by the parasite, the host would presumably reply with anti-anti-antibodies, and so on indefinitely. There was, then, and is now, no reasonable doubt that antibodies are proteids or closely associated with proteids, but it seems that they cannot be identified as such by the fact that they excite the production of antibodies. Dr. S. P. Bedson, of the Lister Institute, has recently¹ examined a supposed instance of the occurrence of these anti-antibodies.

If a rabbit is repeatedly inoculated with the blood platelets of guinea-pigs its serum develops plate-lytic properties and causes purpura when injected into guinea-pigs. If a guinea-pig is given a quantity of this serum sufficient to cause symptoms but not large enough to kill it, and is then left for a fortnight or so, it is then found to be more resistant than normal guinea-pigs to the injection of the rabbit lytic serum. It has been supposed that this acquired immunity is due to the production by the guinea-pig of an antibody to the platelet antibody made by the rabbit. Dr. Bedson shows, however, that the phenomena can be reproduced if the first injection is the serum of a normal rabbit. The resistance to the second injection must therefore be supposed to be simply resistance to rabbit proteid, not rabbit antibody. Since antibody is associated with proteid, the former necessarily involves the latter. No evidence is obtained that the rabbit antibody is a new proteid substance. It might be and yet fail to arouse the formation of specific antibody. But it seems more probable that the antibody, which for convenience is spoken of as a special substance, is really only a special property of a normal serum proteid. Of the existence of antibodies as substances rather than properties there is, indeed, no

evidence at all; if they are not separate substances they cannot lead to the production of separate and demonstrable antibodies.

If, then, the anti-anti-reaction fails as between two mammals—the group in which the capacity for antibody response is most highly developed—there is still less reason for supposing that anything of the kind occurs in the relations between a relatively elementary parasite and a mammalian host. For the antibody response to proteid from a different species is not a general property of living matter; it is very poorly represented in invertebrates generally, and its existence among bacteria and protozoa has never been demonstrated any more than in plants. It is now realised that bacteria protect themselves against mammalian antibodies by using their vast numerical abundance and capacity for rapid multiplication to breed out resistant races. They achieve immunity to antibodies, but it is effected by entirely different methods to those used by their sparse, slowly-breeding hosts, and it is racial rather than individual.

FRENCH HOSPITALITY FOR FOREIGN COLLEAGUES.

MEMBERS of the medical profession travelling in France and wishing to study the French practice of medicine will find in the Association pour le Développement des Relations Médicales (l'A.D.R.M.) a useful guide and friend. It was established in 1920 and has grown in importance ever since. Its governing body consists of 40 members recruited from the most notable persons in the French medical profession, with Prof. Hartmann at its head. Its original aim was to help members of the medical profession, coming from allied and friendly countries, to Paris. A Bureau has been organised to supply visitors with information, and it has served this purpose so well that it has rapidly extended its activities, and has become an institution (1) for promoting the expansion of French medical science; (2) for establishing relations between French universities, societies, and journals with similar institutions abroad; (3) for encouraging the exchange of professors and other representatives; and (4) for paving the way for foreign doctors and students wishing to study in France. The Association has its headquarters in the Bécлар Room of the Faculty of Medicine, and every morning and afternoon on week days visitors can obtain not only special information with regard to medical subjects, but also useful hints as to such practical matters as hotel charges and pension accommodation. All this information is given free of charge. A pamphlet, *l'Enseignement médical à Paris*, costing 1 franc, will give the medical visitor information as to: (1) the faculty of medicine and the hospitals; (2) medical teaching courses, including libraries and museums; (3) institutes and schools attached to the faculty; (4) clinical teaching in the hospitals; (5) complementary and post-graduate courses. The pamphlet contains a large plan of Paris with a key index of the hospitals. The telephone number of the Bureau is Fleurus 07-16.

SUDDEN DEATH FOLLOWING THORACENTESIS.

ACCORDING to Dr. Ernest S. Du Bray,¹ instructor of medicine in the University of California Medical School, San Francisco, cases of syncope, collapse, and death can be classified in three groups. In the first group of cases, as Capps has shown, the symptoms are neuro-genic, being due to a pleural reflex. In such cases syncope during aspiration is caused by direct cardiac inhibition from irritation of the pleural or pulmonary nerves by the trocar or by congestion. It is commonest towards the end of the operation when the instrument is most likely to scratch the pleura and when the lung is most congested. Syncope occurring within 48 hours after aspiration is probably due to the circulatory

¹ Journal of Pathology and Bacteriology, vol. xxvi., p. 176.

¹ American Journal of the Medical Sciences, March, 1923.

reflexes arising from congestion of the lungs. Syncope during irrigation of the pleural cavity is the result of a reflex arising from chemical irritation of the pleura. A second group of cases is always associated with demonstrable anatomical lesions of the lung parenchyma either in the form of laceration or punctured wounds caused by the trocar or definite pulmonary congestion of an extensive grade. This group includes cases of air embolism of the cerebral vessels and cases with well-marked signs of acute pulmonary oedema, which usually supervenes after drainage of the pleural cavity, though it may occur after simple exploration. The exact mechanism of this acute pulmonary oedema is still unsolved. Pulmonary thrombosis following lung puncture with resulting cardiac or cerebral embolism may also cause untoward symptoms. In this mixed group it is probable that several factors combined account for collapse in most instances. The third group of cases is that associated with the occurrence of accidental pneumothorax. Dr. Du Bray, however, is of opinion that many of the fatal cases ascribed to this cause would probably be better explained on the basis of the pleural reflex or pulmonary injury and congestion. In the case observed by himself, which occurred in a woman aged 23, the autopsy showed that collapse during exploratory puncture and subsequent death of the patient within 12 hours were not produced primarily by the pleural reflex or by the rapid production of accidental pneumothorax, but by a puncture wound in the middle of the right lung, which was surrounded by hæmorrhage and congestion associated with extensive pulmonary oedema.

THE REMUNERATION OF POOR-LAW MEDICAL OFFICERS.

THE recent circular issued by the Ministry of Health (Circular 382) on this subject contains information of importance to a large number of medical practitioners. By its instructions medical officers under this service in many instances will have their bonuses brought into salary, and their salaries are thus standardised or stabilised for the next few years. The Ministry do not desire a statement to be submitted to them respecting the changes in salary unless an increase of expenditure is required. Increases will not, as a rule, be considered more frequently than once a year or on a general consideration of the position—e.g., when it is proposed to revise salaries on a post-war basis instead of continuing to remunerate them by means of salary and bonus. In many instances—the number of these is unknown but is large—boards of guardians refused any bonus additions to the salaries of their medical officers during the war and after. In some instances it was alleged, in this connexion, that the operation of the National (Health) Insurance Act has in considerable measure transferred former medical work under the Poor-law to practitioners under the Insurance Act, and in other instances that war conditions, with their abundance of employment, had still further lessened the work of district medical officers. Whatever degree of importance attached to these contentions at the time they were made, conditions in this and last year have more than reversed the balance; and at the present time we have no doubt that older district medical officers would state that, although the general public health is good, their work is as great as say a quarter of a century ago. The amount of work necessitated for the unemployed, and still more for their dependents, has had a marked influence in increasing district Poor-law medical work. Furthermore the work of the district medical officer in certifying patients for admission to infirmaries has greatly increased, especially in towns, in part owing to the satisfactory fact that these infirmaries are gradually becoming recognised as general hospitals for the wage-earning classes, especially for cases not of a very acute type, which cannot be satisfactorily treated at home. We understand that at the present

time an attempt is being made to collect and analyse information and thus help in securing the standardisation of salaries of district medical officers and of part-time resident medical officers of infirmaries in relation to the amount of work done.

The whole subject calls for exhaustive consideration as part of the larger question of consolidation of public medical services. Meanwhile we welcome the implied insistence in the circular of the Ministry of the condition that no medical officer's salary shall be reduced without their consent. We wish they had gone a step further and insisted on the regularisation of the situation of medical officers whose appointment is "temporary." This continues to be one of considerable hardship.

DEATH CERTIFICATION.

A BILL to amend the law relating to Coroners' Law and the Certification and Registration of Deaths and Burial was ordered by the House of Commons to be printed last February and may come up for reading to-day (Friday). It is largely based upon the representations of a committee of the British Medical Association, and it deals with many of the defaults and anomalies which all medical men know to exist to-day. Death certification is a matter of the first importance to the public and the medical profession, and many public officials have pressed for reform in the existing procedure. The Bill provides, *inter alia*, that, while the Registrar cannot proceed under Section 17 of the Births and Deaths Registration Act, 1874, until he has received a medical certificate of death, such certificate must be given by a registered medical practitioner who has viewed the body, being either the practitioner who certifies the cause of death, or the practitioner who has attended the deceased in his last illness, or, failing these, a special medical officer. The appointment of the special medical officer is to be made by the council of either county or borough "for the purpose (where the coroner shall so direct) of investigating and reporting to him upon the cause of death of the deceased." The fee to registered medical practitioners and special medical officers in respect of certification, for the certificate of death, will be 2s. 6d., with an additional fee of 2s. per mile without the radius of a mile. The fee for the certificate of cause of death is also 2s. 6d. The fees to registered medical practitioners and special officers payable by the coroner are in a further schedule, and run as follows: For a report to the coroner that death has arisen from unnatural causes 10s. 6d., and £1 1s. for any further report required by him; for making by the direction of the coroner a post-mortem examination, whether an inquest be held or no, £2 2s., if without an analysis of the contents of any organ, while for such an analysis an additional fee not exceeding £5 5s. will be paid on the coroner's direction. For every day of attendance to give evidence on the summons of the coroner £1 1s. will be paid.

A section dealing with the report to be made to the coroner, where the circumstances are suspect or where the medical certificate is withheld, runs as follows:—

"Where a medical practitioner has attended a deceased person in his last illness, or has attended at a birth of a still-born child, it shall be the duty of such practitioner within 24 hours after he has become aware of the death, or after the birth has occurred, to sign and deliver to the registrar in a sealed envelope a medical certificate of the death or still-birth (as the case may be), and (in a case of death) either to deliver as aforesaid a medical certificate of the cause of death, or if such cause be unknown to him, or if he shall be of opinion that the death is directly or indirectly arisen from, or been accelerated by violence, neglect, poison, or other unnatural cause, to report the circumstances of the death and his opinion thereon to the coroner for the district in which the death occurred."

A heavy penalty is placed upon error or default, for any practitioner who fails to comply with the provisions there set out will be liable for each offence to a penalty not exceeding £20.

THE WORK OF THE GENERAL NURSING COUNCIL.

THE General Nursing Council is settling down to its proper work. The Nurses Registration Act of 1919, which placed the nursing profession on a legal basis, granted it the privilege of electing its own governing body, and the first election of this Council, composed of 16 registered nurses, together with five representatives of the Ministry of Health, two representatives of the Board of Education, and two medical practitioners, took place last January. The nominated Council, which served from 1920 to 1922, had an uphill task in its endeavours to set up machinery designed to bring about standardisation and order amongst a large body of workers where practically no standards had hitherto prevailed. The most important work before the new Council must be of an educational nature, for until a sound foundation of education is laid the profession of nursing cannot be said to be securely established. The hospitals which supply the material for training are so varied in character that it is not easy to establish a uniform standard of education. The task, although formidable, is one which can be surmounted, and the General Nursing Council is inviting the hospitals which provide treatment of a specialised nature to submit schemes for the general training of nurses in which such special hospitals may be included. The Council has wisely omitted to state a minimum number of beds which shall entitle to receive recognition as a training school; evidence must be produced that work in that hospital can supply adequate material for training, and that the hospital is justified in entering its nurses for a prescribed State examination. It is now for every individual hospital to see that its nurses are adequately trained in the care of the sick and taken through a part or whole of the curriculum prescribed by the Council. The conduct of the qualifying examination and the establishment of a panel of examiners will demand much attention, since the standard of the trained nurse ultimately rests with the trained examiner. The General Nursing Council has brought out the first State register of nurses, but that is only a beginning. The standard laid down for the registration of existing nurses has been criticised as inelastic, but it should be remembered that a rule whereby nurses practising before 1900, and still in practice in 1919, are eligible to apply for registration, is now before the Minister of Health for his approval. Whether this extension is sufficient is doubtful, and a more generous interpretation of the Act may yet be necessary. Other questions now before the Council are the protection of the State registered nurses' uniform, the misuse of which in the future will be a penal offence, and the fixing of examination fees for future nurses.

SUMMER time starts in this country from next Sunday, April 22nd, at 2 A.M., and ends on Sunday, Sept. 16th.

AT a meeting of the London licensees of insulin with the Medical Research Council on Friday, April 6th, the suggestion was discussed that the Medical Research Council should issue an official announcement with regard to present supplies of insulin of British manufacture, intimating that arrangements have also been made for the distribution of temporary supplies of insulin of American origin. Messrs. Burroughs Wellcome and Co. deferred therefore the communication that supplies of their own manufacture have been issued. "Wellcome" Brand Insulin is manufactured throughout by Messrs. Burroughs Wellcome and Co., and we are informed that a batch of insulin produced at the Wellcome Physiological Research Laboratories some time before Dec. 1st, 1922 (for which date the Medical Research Council called the first informal conference with the manufacturers to discuss the production of insulin), proved satisfactory on test.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XVI.

THE TREATMENT OF PRIMARY OR SPASMODIC DYSMENORRHOEA.

THE effective treatment of dysmenorrhœa depends upon a correct recognition of the variety and of the conditions causing the excessive pain. It may be divided into two main classes—namely, pain with, and pain without any accompanying disease of the pelvic organs. The dysmenorrhœa most commonly met with in young girls or in sterile married women is the so-called primary or spasmodic variety without any disease of the pelvic organs.

The exact causation of the primary or so-called spasmodic dysmenorrhœa is uncertain, but the working hypothesis, which accords best with the facts, is that it is due to spasmodic rigidity of the sphincter muscle at the internal os accompanied by colicky uterine contractions.

General Treatment.

The first step to be taken in undertaking the treatment of a case of dysmenorrhœa is a careful investigation into the state of the patient's general health, her mode of life and surroundings. In the event of any general condition such as anæmia, chronic dyspepsia, or tuberculous disease being found, the treatment of these must first be undertaken. The two conditions most frequently calling for alleviation are anæmia and constipation, the first increasing the pain by diminishing the menstrual flow, a common clinical history being that the freer the flow the less the pain, and the second increasing the pain by producing pelvic congestion. In the same way such unhealthy conditions as overwork, standing for many hours, improper or insufficient food, the abuse of alcohol must all, if possible, be corrected. The lack of success that so often attends the treatment of hospital out-patients may be due to the failure on the part of the physician to recognise these factors or inability on the part of the patient to correct them.

Treatment may have to include, when possible, change of occupation, change of surroundings, more care at the periods, especially in the case of young girls at school.

Exercise and Baths.—The taking of a proper amount of exercise in the fresh air is important, and young girls often require advice as to the precautions they should take when the period is present. While for a healthy girl with no undue amount of pain it is unnecessary to alter her ordinary habits during the period, for those who suffer undue pain, rest is essential, and excessive exercise or the playing of games must be forbidden. The provision of a sufficient amount of sleep in properly ventilated rooms is important. All young girls should be advised to take hot baths during the whole of the period, and this habit should be acquired from the very commencement of their menstrual life. Care must be taken to avoid chills, and cold baths or bathing must, of course, be prohibited. The practice of taking hot baths certainly tends to lessen any pain that may be present, and is both cleanly and hygienic.

Constipation undoubtedly has a most baneful effect upon dysmenorrhœa, producing as it does pelvic congestion and marked pressure from scybalous masses on the uterus and ovaries, so that in every case it is essential to regulate the bowels, and not to be content to rely simply on the use of aperients or enemata. The patient should be ordered a proper diet containing an excess of vegetables, fruit, salt, and water. Many young women habitually drink too little; a sufficiency of fluid is essential if constipation is to be overcome. The patient should be told to try to have her bowels open at the same hour every day,

even if there is no desire to defæcate. Commonly, the first result of such an order is no action of the bowels for several days, yet no aperient should be allowed, and the patient should be assured that relief will ultimately and surely be obtained. It may be necessary to help matters by the administration of liquid paraffin as a lubricant. If this treatment fails to act, then one of the milder aperients, such as cascara sagrada, should be given in small doses every day, not in large doses occasionally. If it is obviously the lower bowel which is at fault, then this may be emptied regularly each day by small enemata, but the régime should be persisted in and the enemata given up as soon as possible. It is particularly when the dysmenorrhœa is associated with severe headaches and vomiting that the treatment of constipation is so important. If cascara sagrada disagrees, recourse may be had to one or other of the simple laxatives, to be taken with the paraffin, such as sulphur, senna, aloes, figs, or an effervescent saline mixture. Whenever possible, however, aperients should not be solely employed, and as adjuvants the importance of regular exercise and the use of abdominal massage should not be lost sight of.

Treatment of the Pain.

In any severe case of primary or spasmodic dysmenorrhœa the first and most important thing is for the patient to go to bed. If this is impossible it is much more difficult to obtain relief from the pain. Warmth should be applied to the lower abdomen and back by means of hot-water bottles. If possible, the patient should be put into a hot simple or mustard hip bath, or small enemata may be given as hot as can be borne and retained as long as possible. These may be simple enemata of hot water alone, or may contain such drugs as potassium or sodium bromide 20-30 gr., chloral hydrate 20 gr., chlorotone 10-15 gr., especially when vomiting is a marked symptom, or antipyrine 15 gr., suspended in a small quantity, say 4 oz., of hot mucilage of starch.

In the treatment of the pain by the internal administration of drugs most reliance is to be placed upon the coal-tar derivatives, such as antipyrine, phenacetin or aspirin in doses of 10-15 gr. of each, or pyramidon 5-8 gr. Antifebrine has so often given rise to poisonous symptoms that it should not be employed. These drugs should be combined with small doses of caffeine citrate, in the strength of 1 gr. to every 5 gr. of the drug ordered, to lessen their depressant effects.

One of the most successful methods of treating these cases is by the administration of atropine. Atropine has a markedly sedative effect upon the movements of the stomach and intestine; after small quantities of aperients the normal peristaltic action is not affected, but the griping pains resulting from large doses or from the more violent purgatives are absent if atropine is given along with them. (Cushny.) The same sedative effect is seen in the case of the uterus, and here again the drug acts best when the muscular contractions are irregular and excessive. It is not surprising then to find that the administration of atropine produces good results in the treatment of primary or spasmodic dysmenorrhœa. The treatment should be commenced some few days before the expected onset of the period, and 1/100 gr. may be given in tablet form three times a day, and the dose may be increased if necessary, provided the patient tolerates the drug well. Benzyl benzoate has been suggested as a drug possessing a similar action to that of atropine and as less likely to produce toxic symptoms. It may be given in the form of an emulsion as follows: benzyl benzoate, 15 gr.; mucilage of acacia, 1 drachm; aromatic elixir, 1 oz., in a dose of one-half to 2 drachms every two hours as required. Many other drugs have been recommended and are still used in the treatment of dysmenorrhœa—for example, apiol, hydrastis canadensis, viburnum prunifolium, gelsemium, cimicifuga, pulsatilla, cannabis indica, and others. The three drugs which should never be ordered if they can possibly be avoided are alcohol, morphia, and cocaine.

Alcohol undoubtedly has a considerable effect in relieving the pain, and it is an old-fashioned remedy, but the danger of establishing the practice of drinking is so grave that it should never be ordered, and the same warning applies to morphia. If it is necessary to give the latter drug—and at times the pain is so intense that it must be used—then it should be given as a hypodermic injection only. In cases where ordinary remedies fail and the pain is not so severe as to require morphia for its relief, it is permissible to give small doses of opium in such a prescription as the following: pot. brom., 15 gr.; sal volatile, half drachm; tinct. camphor co., half drachm; tinct. zingib., half drachm; aq. menth. pip., 1 oz.; two tablespoonfuls to be given when the pain is severe. In highly strung neurotic patients the combination of one or other of the bromides with some of the anti-spasmodics mentioned is often useful.

Dilatation of the Cervix.

When, in spite of all that can be done to correct any defect in the patient's general health and medicinal treatment of the pain fails, other measures must be resorted to. The procedure most commonly adopted is dilatation of the cervix. This is done with the object of paralysing, at any rate for the time being, the sphincter muscle of the internal os, and if it is to be successful must be performed thoroughly. When we remember the probable cause of the pain it is not surprising to find that the results of this operation are not very satisfactory. About one-third of the patients are cured, another third are relieved for a varying length of time over one or more periods, and in the remainder it fails. The operation may be repeated a second time if it fails the first time, but it is not as a rule worth while doing it more than twice.

When both medicinal treatment and dilatation have failed to relieve the pain it has been suggested that subtotal hysterectomy should be performed with the object of producing amenorrhœa. This procedure in a young woman is, however, never justifiable. In many of these patients the pain ultimately is relieved either by treatment, the lapse of time, or marriage and the occurrence of pregnancy. For these reasons so serious and mutilating an operation as hysterectomy should not be performed. At the present day the same result—namely, amenorrhœa, either permanent, or, better still, of a temporary character—can be obtained by the intra-uterine application of radium. The introduction of a 50 mgm. tube of radium into the interior of the uterus and its retention there for a period of 8-10 hours will result in amenorrhœa usually lasting for 12-18 months. The first result is often an excessive period, but after this the periods usually stop gradually or immediately, and the resulting period of amenorrhœa can be taken advantage of to improve the patient's general health if necessary in the hope that when the periods return they may possibly occur without severe pain. A sufficient number of these cases have not yet been treated by radium to enable us to determine the effect upon the pain when the periods return, but this method of treatment should be given a trial in any case in preference to performing hysterectomy.

Treatment of Membranous and Secondary Dysmenorrhœa.

If the passage of the shreds or membranes is not associated with pain no treatment need be undertaken. If severe pain is present then it should be treated in the manner already outlined. Treatment of the interior of the uterus by the application of drugs or the operation of curettage yields very poor results and is not as a rule worth undertaking. If the case is one of secondary or congestive dysmenorrhœa due to disease of one or other of the pelvic organs, then it is essential to undertake the correct treatment of the underlying condition whatever that may be, and only if this is impossible should the pain alone be treated.

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Special Articles.

REPORT ON THE HEALTH OF THE ROYAL AIR FORCE, 1921.*

THERE was a general reduction in sickness for the total force during 1921. This is more marked when it is taken into account that sickness figures for India are included for the first time. The rates for India are higher than those of any other area, but in spite of this, the ratio per 1000 of strength of fresh cases of sickness has dropped from 551.8 in 1920 to 497.3 in 1921. These ratios exclude cases of sickness of less than 48 hours' duration. The average duration of each case in days (excluding 48-hour cases) fell from 48.5 in 1920 to 19.6 in 1921. This drop is partly accounted for by the fact that the war legacy of low medical category cases, which was influencing the figures for 1920, had been eliminated during the year under review. The sole increase in ratios was in the death-rate, this being 4.7 per 1000 for 1921, compared with 4.4 for 1920. The total number of deaths was 134 as compared with 115 in the previous year. The disaster to H.M. Airship R.38 accounted for 24 of the 134 deaths. Excluding these 24 deaths, the death-rate per 1000 of strength for 1921 would have been 3.9.

Venereal Disease.

Successful efforts were made throughout the force during 1921 to reduce the amount of venereal disease. The total case-incidence per 1000 of strength was 36.1 compared to 49.6 in 1920. In the report under review a new feature is the distinction made between primary cases—i.e., cases reporting for treatment for the first time after infection—and all other venereal cases. The primary rate in 1921 was 22.4 per 1000, as compared with 36.9 for 1920. An interesting chart is given showing the primary case-rates per month; the chief feature of the chart is the steady diminution shown in the case-rate over the period of two years. The reduction in the rate would appear to have been very largely effected by the energetic prophylactic measures which were carried out. These measures are described in detail in the report. An attempt has been made to estimate the value of prophylactic disinfection and the results of this investigation are shown in tabular form.

"Upper Air-Passage Infections."

The term "upper air-passage infections" has been retained, and a chart is given showing the monthly case-incidence in ratios per 1000 of strength in the United Kingdom and abroad in 1921, and in the United Kingdom in 1920. The marked differences in the graphs of the United Kingdom for 1920 and 1921, in March, April, and May is probably largely due to the varying climatic conditions of the two years. It will be remembered that the weather in 1920 was remarkable for a wet spring, but 1921 was particularly fine during that season. A table is also given which shows the monthly case-incidence in ratios per 1000 of strength in each area abroad during 1921. From this table it appears that the Mediterranean littoral (which includes Egypt, Palestine, and Malta) shows the highest rate of all areas abroad, as did Egypt and Palestine in 1920, the respective ratios per 1000 of strength being 93.4 in 1920 and 110.4 in 1921.

Deaths and Injuries.

Deaths and injuries are treated as in the report for 1920. Tables are given showing death and injury ratios among different types of units. These are further

explained in a table which shows the comparative case-rates of deaths and injury in each of the groups of units. Among the larger groups at home the main difference from the corresponding figures in the report for 1920 is the improvement in the health of personnel depôts—mainly due to the elimination of men of low medical category who were concentrated in such units in 1920. The headquarters group (consisting largely of administrative units) and personnel depôts have the smallest amount of sickness, whilst experimental units, flying schools, squadrons, and repair depôts again show the highest proportion of injury. Disease rates generally abroad are considerably in excess of those at home, which is naturally to be expected in view of climatic conditions, and it is suggested that the adverse climatic conditions abroad play some part in liability to injury, as injury rates abroad are 50 per cent. in excess of those at home.

A further table shows injuries classified by cause and nature of injury. This table also distinguishes between injuries regarded as occurring "on duty" and those "off duty." From the table it appears that in flying and propeller accidents the injuries are either general in nature or confined to the upper part of the body. In only 14 cases, out of the total of 149 due to these causes, was the lower extremity alone involved. On the other hand, the lower extremity alone was injured in 436 cases out of a total of 610 due to athletics; 431 out of these 610 cases were due to football, and of these 431 there were 109 cases of traumatic synovitis of the knee, or almost exactly one in every four cases. It is of interest that football accounted for 71 per cent. of all injuries due to athletics both in 1920 and 1921.

Fatal Flying Accidents, &c.

A new table is given which shows machine flights, machine hours, and fatal flying accidents. From this table it appears that although the fatal accident risk for each flight was lower at home than abroad, a larger number of hours was flown abroad for each fatal accident than at home. This is accounted for by the fact that the average duration of each flight overseas was longer than at home. From the material available, it is possible to say that for each of the officers killed during the year in flying accidents (other than R.38) over 4000 hours were flown.

Propeller accidents, accidents in starting motors, motor accidents other than those caused by starting motors, wounds in action, accidental gunshot wounds, other accidents on duty, accidents due to athletics, other accidents off duty, and accidents on leave, are dealt with in detail in the report. From consideration of the material available of accidents caused by starting motors, it appears that three types of cause may be distinguished: 1. By far the commonest, due to the direct impact of the starting handle on the hand at the moment of back-fire, nearly always resulting in Colles' fracture or sprained wrist. 2. Those due to the handle swinging round after the back-fire causing injury, usually of the arm above the wrist. The fracture of the radius or ulna, apart from Colles' fracture, were nearly all caused in this way. Depending on the size of the starting handle and its height from the ground, head and face and lower extremity injuries may more rarely result. 3. A more uncommon type of case occasionally occurs, owing to the starting handle throwing the operator against the radiator or the mud guards of the vehicle.

Sandfly Fever.

Very valuable research work on sandfly fever was carried out by R.A.F. bacteriologists at Malta during the year. This work resulted in the discovery of a spirochæte having morphological characters very similar to the *Leptospira icterohæmorrhagiae* being isolated from cases of sandfly fever. The work is briefly described in the report and further research is still continuing. Apart from Malta, sandfly fever was prevalent in Iraq and India, and in a lesser degree in Egypt and Palestine. A chart is given showing the monthly case-incidence rates in Iraq

* To be purchased through any bookseller or directly from H.M. Stationery Office at the following addresses: Imperial House, Kingsway, London, W.C.2, and 28, Abingdon-street, London, S.W.1; 37, Peter-street, Manchester; 1, St. Andrew's-crescent, Cardiff; or 120, George-street, Edinburgh. 1923. 5s. net.

during 1920 and 1921. From the chart it appears that there was a marked reduction in the case-rate for sandfly fever. But it is impossible to say how much the lowered case-incidence was due to the prophylactic measures taken, as, judging from the experience of the past few years, it would appear that the severity of sandfly fever outbreaks in Iraq vary markedly from year to year.

Malaria and dysentery are dealt with in detail, as in the 1920 report, primary cases being distinguished from other cases.

The Central Medical Board.

The functions and work of the Central Medical Board form a separate chapter. From the table of accepted pilots, it appears that the physical standard of new officer personnel is fully up to the existing standards as determined by war-time conditions. Tables are also given which show the physical efficiency of serving officers. The tables bear out the impression previously held that flying, in addition to being associated with a high degree of physical fitness, is helped by youth and a certain degree of body bulk.

The principal points in relation to hygiene and sanitation form a separate section.

The Nosological Tables.

In the report for 1920 a detailed nosological table was included showing case, death, and invaliding rates for each overseas area, as well as for the United Kingdom and for the total force. In the report for 1921, the diseases have been grouped together under certain main headings, and in addition, all overseas areas have been grouped together in the main nosological table. A more detailed table is given for the more common diseases, and in this table each overseas area is dealt with separately. The effect of this method of presentation is that although the nosological tables cover the same number of pages as in the previous report, the matter on each page of the table is much reduced. This possibly accounts for the fact that the price of the publication is 5s. as compared with 6s. for the previous issue. This reduction, though slight, is satisfactory.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Proposed Antituberculosis Legislation.

As a result of the enormous increase of tuberculosis during and after the war, the Government has been induced to take more energetic measures against the disease. Among the provisions of a new Bill lately introduced into Parliament are the following: Every case of infectious tuberculosis of lungs or larynx must be notified to the district medical officer within a week of discovery and within 24 hours of death, either by the head of the family or by the medical attendant, or, in the case of hospital patients, by the hospital officials. Notification of change of a patient's residence is also required: where a dispensary station (*Fürsorgestelle*) exists the medical officer must pass the case to that institution for further care, and elsewhere the medical officer, after consultation with the practitioner in charge of the case, must take what steps are necessary—e.g., instruction of the patient and of the family as to danger of infection and as to prevention, especially in relation to the protection of children. Special arrangements will be made against the spread of the disease by teachers, waiters, and all persons engaged in the handling of food. Where no proper attendance is available, the patient may be transferred to a hospital or sanatorium. Private laboratories must notify to the district medical officer every case where tubercle bacilli are found in the sputum. On request of a practitioner or medical officer a local authority must undertake disinfection of a patient's rooms and property; when the expenses of disinfection would

be greater than the value of the things the medical officer may order the latter to be burnt. Expenses of disinfection are to be recovered from public funds if the patient and his family cannot pay them. People omitting notification, or using patients' rooms before disinfection, are to be fined up to 150,000 marks. One difficulty in the way of administration of the Bill is the lack of an exact definition of "infectious" tuberculosis. If the presence of tubercle bacilli is taken as an index, protection for the patient comes rather late. It must, however, be borne in mind that the Bill leaves the treatment of tuberculous patients to the municipalities, the sick-clubs, and the workmen's insurance organisations, being itself aimed only at prevention of the spread of the disease.

Temperance Movement in Germany.

One of the most striking results of the war was the almost complete disappearance of drunkenness in Germany. During the war alcoholic liquor was not produced except for the fighting forces at the front; the German national beverage, beer, was produced in a form ("Schwachbier") containing only 2 per cent. of alcohol, which was very little appreciated, and was consumed in moderate quantities only. Thus, mental diseases caused by the abuse of intoxicants totally disappeared; many lunatic asylums were practically emptied, and a new asylum in Berlin, which was to be available in the autumn of 1914, was occupied for other purposes. It was hoped that after the war the Government would seize the opportunity permanently to reduce the consumption of spirits, and that, should they be unwilling to make Germany totally "dry," they might at least stop the granting of new licences for the sale of liquors. These hopes were unfortunately unfounded: the production of alcohol is a Government monopoly, and shortly after the end of hostilities the sale of liquors began again, on a larger scale than before. The consequences of this abuse are now obvious even to a superficial observer. Intoxication has become common amongst youths; asylums have again become overcrowded, and the financial distress of many working-class families is aggravated by the drink habit. The Association of Medical Abstinents, under the chairmanship of Prof. Abderhalden, the well-known physiologist of the University of Halle, are canvassing the medical profession to sign a petition against the abuse of alcohol. They propose that the sale of spirits should be forbidden to people under 18 years of age, that all bars and restaurants where alcoholic liquors are sold should be closed at 11 P.M., and that the granting and maintenance of licences should depend in any particular city or district on the result of a local referendum. In certain cities private votes have been taken with remarkable results; for instance, in the central district of Bielefeld, a large industrial town in Westphalia, a privately-arranged referendum resulted in 12,000 persons, out of 14,000 on the list, voting that the city should go entirely "dry."

Foreign Patients in Germany.

The influx of foreigners who have come to this country to take advantage of the depreciation of the currency has roused the Government to reduce as much as possible the granting of visas by German consulates abroad. Many Germans cannot find proper housing accommodation, whilst foreigners frequently have very little trouble in procuring well-equipped homes. The thousands of families expelled by the French from the Rhine and Ruhr districts must, of course, be provided with homes: the supply of milk and other food has again become almost as scarce as during the war—an evil aggravated by the number of foreign residents. The measures adopted by the Government, together with the temporary improvement of the exchange, has already reduced the number of foreigners. The medical profession in Germany is interested in this state of affairs, for visas are refused to foreigners who wish to consult German specialists. Prof. Kraus, president of the

Berlin Medical Society, has collected a number of cases where such refusal has resulted in disadvantage to German medical men, sanatoriums, and spas. Even when permission is granted to a foreigner to enter Germany, a time limit is set, and prolongation of the visit is made dependent not on the opinion of the medical attendant, but on a certificate from a district medical officer who cannot, of course, judge a case on its merits. Prof. Kraus has extracted from the Foreign Office a promise that the granting of visas to foreigners coming to Germany for health reasons shall in future be facilitated.

Mercury Poisoning.

A unique case of poisoning was recently shown by Prof. Umber at a meeting of the Berlin Medical Society. A hospital nurse had tried to commit suicide by an intravenous injection of 2 g. of metallic mercury. The first three days no symptoms of poisoning occurred, but after that period heavy diarrhoea, tenesmus, stomatitis, and oppression ensued. At the site of injection an abscess had formed, which on incision discharged metallic mercury and pus. The general symptoms gradually disappeared, but eight weeks later the abscess was again incised, and the symptoms reappeared, once more to disappear completely without leaving any trace. Apart from trifling vasomotor troubles and slight emphysema, nothing abnormal was observed for about half a year after the poisoning. The most remarkable feature of the case was the radiogram shown to the society. Both lungs, especially the right middle and inferior lobes, showed enormous masses of mercury emboli which on the plate appeared as intensely black spots corresponding with the net of the pulmonary arteries; a great lake of mercury was visible within the right ventricle of the heart. Prof. Umber concluded from this case that the collateral circulation of the lungs must be excellent, because the general circulation did not suffer from obstruction of the pulmonary arteries by the emboli; further, he concluded that metallic mercury must be comparatively harmless in relation to the human organism, whereas the application of mercury in the form of ointment or oil leads frequently to grave and sometimes fatal consequences.

April 12th.

Public Health Services.

ALLEGED DISSATISFACTION OF INSURED PERSONS: EXPERIENCE OF KENT INSURANCE COMMITTEE.

IN view of the statements made in the daily press as to the alleged general dissatisfaction of insured persons with the treatment they receive from panel doctors, the following facts extracted from the records of the Kent Insurance Committee have been brought to our notice by Dr. J. J. Day, chairman of the Kent Local Medical and Panel Committees.

From January, 1913, to Jan. 1st, 1923, 149 complaints were received and investigated by the committee. Dr. Day investigated completely the complaints received from January, 1919, to January, 1923. These number 71 in all. Of these, six were brought by doctors against insured persons. One was found to be substantiated; two were found not substantiated; three were dismissed as frivolous. The remaining 65 complaints were made against doctors. Fourteen of these dealt with cases of irregular issue of certificates and were not concerned with questions of treatment in any way; 11 were found to be substantiated; two were found not substantiated; one was not proceeded with. Eleven were cases of charging insured persons for treatment to which they were entitled: seven of these were found to be substantiated; four were found not substantiated. Forty cases involved charges of alleged unsatisfactory treatment: 16 were found to be substantiated; 17 were found not substantiated (in one case the doctor was censured); two were dismissed as frivolous; two were withdrawn; two were not proceeded with; one was found "not proven." Taking the last two groups together (although in the first 11 cases the question of treatment

hardly entered), out of 51 complaints, 47 came up for investigation and 23 of these were found to be proved against the doctors involved.

In 1922 there were 13 complaints against doctors, five of which were substantiated and eight unsubstantiated. The total number of persons on the lists of the doctors involved was 18,920—5438 in the substantiated and 13,482 in the unsubstantiated cases. The total number on doctors' lists in Kent for the year was 300,098. This shows an average of one complaint among each 23,084 insured persons. The average over the four years 1919-22 was one complaint among each 23,753 insured persons. During each year there was an average of over 400 doctors on the panel.

In 1919 611 insured persons changed their doctor, while 244,680 were content to remain under their original doctor. In 1920 the numbers were 743 who changed and 271,820 who did not. In 1921 850 changed and 297,591 did not. In 1922 1433 changed, while 298,665 did not.

During the four years 1919-22, 375 doctors applied to have patients removed from their lists.

Dr. Day submits these facts without comment or argument, leaving his readers to judge for themselves the state of affairs in Kent.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Lowestoft.

THE Town Council of Lowestoft have decided to employ a full-time medical officer of health and school medical officer for the borough and port sanitary district, at a salary of £700 per annum. The acting medical officer of health, Dr. W. Hotson Palmer, has just issued his annual report for 1922. The total number of births in the year was 980, and of deaths 560. The birth-rate of 22.0 shows a decrease as compared with 25.6 for the previous year. The gross death-rate was 12.6, and the infantile mortality 72 per 1000, both slightly higher than in 1921. There was an epidemic of scarlet fever of a mild type during the year, and many cases of the disease probably went unrecognised, and so spread the infection. The total number of cases of diphtheria notified was 72; there were 11 deaths. In all the fatal cases occurring in the sanatorium diphtheria had been present five days or more before admission, and Dr. Palmer considers that most or all of these lives would have been saved had attention been called to the disease earlier. Chicken-pox was made notifiable on Dec. 22nd, 1922, and 32 cases were notified before the end of the year. There were 46 deaths due to bronchitis, 43 to cancer, 43 to organic heart disease, 31 to pneumonia, 14 violent deaths, and 5 suicides. An extensive sewerage scheme embracing the rural and Oulton Broad areas of the borough has been inaugurated, is now practically complete, and should be in working order in about six months. When completed this will enable the sanitary authority to deal effectively with the objectionable privy-middens and cesspools at present existing in those previously undrained areas. One hundred and thirty-four new houses were erected, or were in course of erection, during the year.

NORFOLK AND NORWICH EYE INFIRMARY.—At the annual meeting of the governors recently held the committee stated that satisfactory progress had continued during 1922; the in-patients numbered 244, and the out-patients 1631, with a total attendance of 5613. The income for the year from all sources was £2567, and the expenditure £1995, leaving a balance in hand of £572. The almoner reported that the system of making a small charge to patients had continued to work satisfactorily. The amount paid by in-patients was £122, and by out-patients £133. Last year was a notable one in the history of this institution. The infirmary was founded on July 11th, 1822, and on July 11th, 1922, its centenary was celebrated. The question of amalgamation of the Eye Infirmary with the Norfolk and Norwich Hospital has been finally decided on, subject to the separate identity of the Eye Infirmary being retained, and a subcommittee representative of both institutions has been appointed to prepare a working scheme, to be submitted to the governors of both hospitals for their approval.

Correspondence.

"Audi alteram partem."

INSURANCE PRACTICE.

A LETTER FROM A COUNTRY PRACTITIONER.

To the Editor of THE LANCET.

SIR,—I have been trying to think out the advantages of panel over the old club practice and can only find one. It is a very obvious one—increased remuneration. On the old club system we only got 4s. per member per year. This, of course, did not anything like pay a doctor for his work; but the fault originated among ourselves. When there was a vacancy for a club medical officer it was always keenly competed for. I think this was at first due to the fact that the doctor considered that by taking the members at a nominal figure he would assuredly get the majority of the wives and families. Later, at the request of the Guardians, during the hard years when the labourers earned at the most 12s. a week, and in order to lessen the parish work, the doctors formed what are still known as "surgery clubs" for the wives and children of club members. The money—1s. per quarter for adults and 6d. for children under 15—was collected every quarter from the village public-houses. This made the post of medical officer to a club much less valuable—in fact, destroyed its value altogether. Why medical men still competed for these posts it is difficult to say. Probably it was thought that to have 1000 surgery club members, although not paying in itself, would still bring grist to the mill.

I have said that the increased remuneration is the only point in favour of the panel system. But although to my mind there are many points against the new system, the advantage of increased remuneration overshadows them all. And yet in the old days a young fellow, straight from hospital without wife or family, in starting practice on his own or as an assistant, could enjoy the work and the experience, for it always does one good to do something for nothing. When I started 22 years ago I loved it. I used occasionally to attend the Lodge meetings, having gone through the ordinary ceremony of initiation, and I remember to this day the spirit of real fraternity prevailing there. Bro. So and So was in trouble or needed a truss of other appliance and extra remuneration was always allowed. The medical officer was looked up to with respect. He was asked to preside at their dinners and functions. When complaints arose, as they sometimes did, a deputation waited at the surgery to put the case and invariably went away satisfied. Of course all this is altered. We dealt with brothers then, we deal with material now.

When State insurance came in we studied the numerous rules and regulations and got a fair grip of them at the start. But the panel pigeon-hole soon became choked with new rules and amendments. One now found oneself under the letter of the law. It was easy to see that the regulations were framed for the town practitioner, that some of them were next to impossible in the country. Any doctor with a heart wants to infringe these rules. Example: A woman comes in; lives at village five miles away; asks for a certificate for a husband with influenza. Your journeys are all the other way to-day. Medicine and advice will do until to-morrow, but someone must come five miles for the certificate. Next case: Man comes in looking really ill, also living at a distance. "Doctor will you give me a certificate. I have not been to work for three days, but hoped I should throw it off in a day or two. Will you date it back to Monday for me." One has to reply, "No, go home and go to bed, but I cannot date certificates back." In the old days, when the doctor was a trusted person, it was left to his discretion. For patients who live within a mile from the chemist the bog of expensive prescribing hangs over our heads although we supply

what we can from our own dispensaries. Casualties come in and in the urgency of the moment we use up all our own dressings. If afterwards I prescribe 1 lb. of cotton-wool and three or four bandages to make up for the number missed I am taken to task for expensive prescribing.

We get word that the Government referee is coming down for an annual inspection. Shall we write and ask him to lunch? No bribery, play the game! Agreeably surprised to find he is flesh and blood. He examines the "record cards" which, by the way, are good as clinical records even if no good for statistics; but there are times when the country panel doctor is too tired to care whether he puts down his own good marks or not. Referee makes a great point of the fact that you have not filled in the left-hand bottom corner of the card where it runs "State whether married (M) single (S) or widowed (W)." This you understand is most important for statistics. He looks in your bottle shop and seems surprised: "My dear fellow, how much do you spend on drugs?—What! £250? Absurd! When I was in practice I did it on £40."

Anyhow, thank God I am a country practitioner! It is the most humane of occupations. One learns to sympathise with men in their sorrows, yea even in their sins, knowing that every man has a hard fight against many odds. One learns how to be happy and high-minded amid the meaner drudgeries of life. No voice of distress reaches our ears in vain. But the one phobia from which the country practitioner suffers is that of becoming out of date. I had the fear when I first started in practice. A few years back I spent my three weeks' holiday acting as senior house surgeon at my own hospital as a preventive, but still the phobia. How the Ministry of Health might help us here. They must have their statistics to feed the wolfish appetite of the public, but let us have in addition a body of real useful consultation referees. Let one come to our district every quarter and stay a week. We always have a dozen obscure cases which we cannot diagnose without reservation, or whom we want to help. It is the undiagnosed case that saps the life of the conscientious practitioner. Let the consultant's duty be that of affording post-graduate instruction in a friendly way to the doctor, and a senior country practitioner's life will again become worth living.

I am, Sir, yours faithfully,

RUSTICUS.

April 13th, 1923.

* * We comment upon this suggestive letter in a leading article.—ED. L.

SERUM DOSAGE IN DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—Dr. C. B. Ker pointed out in your issue of March 31st that small doses of antitoxin are often efficacious and 8000 units—as recommended by the Ministry of Health—often unnecessary. The limited experience of a general practitioner may be of interest; he often sees the case early, the fever expert late. During 5½ years I have seen 126 cases of diphtheria, fortunately most of them early as the public are becoming educated to the horrors of the disease. It had been my practice to give 2000 units in early cases till the gratuitous distribution, since when I have given 4000. I always carry an antitoxin outfit in my car (the empty cartons make excellent bulb-carriers!), so that not more than five minutes need elapse between diagnosis and injection. Of 120 cases that recovered the only complications were tracheotomy in one case (seen late) and a slight nasal voice for a few days in another. When I return from a holiday, however, it is quite common to see three or four cases of palatal paralysis who have had a "sore-throat" during my absence, no antitoxin having been given. There are also cases seen for the first time with cardiac symptoms and a history of sore-throat a week or two previous.

I often wonder how many myocardial conditions are due to latent untreated diphtheria. I have had

six deaths—a terrible and largely avoidable mortality of nearly 5 per cent.; thus, of four of these, in two I was not sent for till the third day, in one the fifth day, and in one the sixth day! Three of them died of cardiac paralysis and one of oesophageal paralysis. Of the other two deaths—in one the initial diagnosis was ? scarlet fever, in the other septic throat, with consequent delay. These are but a small number of cases, yet they are typical and a larger number would show, I hope, improved results as the wisdom of the public and the doctor grows. Dr. F. Thomson speaks of the inability of the inexperienced man to distinguish a mild from a severe case. Is it not, rather, as Dr. Ker says, the promptitude with which antitoxin is given that matters? All the cases I see early seem mild enough, whereas all the fatal cases were either seen or treated late. One lesser point—what percentage of cases develop an antitoxin rash? I have seen only two, whereas the percentage is given in a well-read "Skin" book as 33.

I am, Sir, yours faithfully.

Aberdare, April 11th, 1923.

AMBROSE W. OWEN.

BREAKDOWNS AND LOWERED IMMUNITY.

To the Editor of THE LANCET.

SIR,—The question must often suggest itself why one person in a hundred or a thousand dies suddenly of influenza, septicaemia, pneumonia, &c. Young and strong men and women die of influenza, and, as in a recent well-known case, an apparently healthy man in the prime of life, after some months of anxious work in a warm climate dies as the result of a mosquito bite. In such cases the risks of invasion by pathogenic organisms are not extraordinary. The individual may have been exposed to exactly the same risks many times before without ill-effect. Such facts seem to warrant the hypothesis that the normal resistance of the tissues may be suddenly lowered or altogether broken down without obvious signs of ill-health.

This letter is intended simply as a note of interrogation. Can our experts in immunity say how far it is now possible to detect and measure this loss of resistance to those fatal maladies? The new work on diphtheria raises one's hopes. Granted such knowledge it might be comparatively easy to go a step farther, and, by specific or non-specific means, restore the normal resistance of the tissues.

I am, Sir, yours faithfully.

London, April 12th, 1923.

R. FORTESCUE FOX.

HOFFMANN'S BACILLUS AND ACUTE TONSILLITIS.

To the Editor of THE LANCET.

SIR,—In an annotation entitled Recent Work on the Schick Test, which appeared in THE LANCET of April 7th, dealing with the report by Dr. S. F. Dudley to the Medical Research Council, this author seems to have assumed that Hoffmann's bacillus is non-pathogenic. I feel that this assumption cannot pass unchallenged and for the following reason.

In 1918, while in a military hospital in England, two men were admitted to the wards suffering from acute tonsillitis. The appearance of the throat in each case was suggestive of diphtheria, but the exudate was not typical. Swabs were taken and subjected to careful bacteriological examination, with negative results for *B. diphtheriae* but positive for *B. Hoffmanni*. On the result of the bacteriological findings no serum was given, but local applications, and general medication prescribed. As no improvement was taking place swabs were again examined with the same result. The patients both became very toxic, and developed oedema, with scanty output of urine. The urine, which was clear on admission, was re-examined in both cases, and abundant albumin, blood, and casts were found. Swabs were examined a third time and

still the same result. Both patients ultimately died from extreme toxæmia and practically anuria. In these cases treatment had been in the form of local applications and general medication throughout, and no serum of any kind had been administered.

Following on these cases four other patients were admitted with acute tonsillitis, and the early clinical condition was identical with the cases above recorded, and swabs were taken with the same bacteriological results—viz., positive for *B. Hoffmanni*, and negative for *B. diphtheriae*. I suggested to the medical officers in charge of the cases to try anti-diphtheritic serum, as previous treatment had been valueless, and 6000 units of serum were given subcutaneously in the lax tissues of the abdominal wall. The result justified the more or less speculative form of treatment, for almost immediate improvement took place in the clinical condition of the patients, and the throat cleared up in two to three days. Convalescence was slow but uneventful. None of these cases developed any marked toxæmia or kidney symptoms, as proved by systematic examination of the urine.

From this experience I have continued to consider *B. Hoffmanni* as distinctly pathogenic, and in its local and general toxic effects to resemble very closely those produced by *B. diphtheriae*. In practice I have encountered six cases of acute tonsillitis where the clinical aspect has suggested an infection by *B. diphtheriae* and where *B. Hoffmanni* has been found to be the infecting agent. In these cases I have given doses of anti-diphtheritic serum varying from 4000 to 8000 units, and the results obtained seem to justify this procedure, for the throats clear up rapidly without complications.—I am, Sir, yours faithfully,

DAVID SMITH, M.D., F.R.F.P. & S. Glasg.,

Physician to Out-patients, Royal Infirmary, Glasgow.
April 10th, 1923.

A CHLOROFORM TRAGEDY: THE QUESTION OF RESPONSIBILITY.

To the Editor of THE LANCET.

SIR,—According to the press reports of a recent inquest a patient about to undergo an operation lost her life owing to the anaesthetist using a chloroform inhaler the tubes of which had been wrongly connected. It would appear from the report that the woman doctor succeeded in shifting the responsibility for this on to the theatre sister, for the jury added a rider to their verdict that in future the theatre sister should be responsible for all apparatus and instruments in the operation theatre. This rider does not define the extent of responsibility, and, strictly speaking, the words would appear to mean "responsible for safe custody," but from the context it is clear that the jury meant to imply that the theatre sister should be responsible for the proper putting together and proper working of the apparatus. If this be so, it is not common sense, and, I venture to suggest, is not good law. As to the action of the doctor in shielding herself by blaming inferentially her subordinate, I express no opinion, but the rider of the jury should not be allowed to pass unchallenged. The theatre sister's duty is to keep the various instruments and apparatus clean and in proper order. During the operation she is under the direction of the surgeon, and so she can hardly be held responsible for the way in which the various instruments are used. Clearly, it is the anaesthetist's duty to see that the apparatus is in proper order before it is used. The position is somewhat analogous to that which arises when at an operation a swab is left in the abdominal cavity. The responsibility is the surgeon's. He may delegate the checking of the swabs to the sister, but the responsibility still remains his. "Qui facit per alium, facit per se." A surgeon, like any other mortal, may make mistakes, but any attempt to put the blame for errors of this kind on to the nurse is not only unfair but unjust, and should not receive either moral or legal sanction.

I am, Sir, yours faithfully.

HERBERT J. PATERSON.

London, W., April 14th, 1923.

THE LIFE-HISTORY OF THE TAPEWORM, *HYMENOLEPIS NANA*.

To the Editor of THE LANCET.

SIR.—The life-history of the dwarf tapeworm, *Hymenolepis nana*, has been, for many years, a subject of medical interest and discussion, the importance of which arises from the fact that it is regarded as one of the commonest tapeworms of man in certain parts of the world. The fact that a morphologically indistinguishable tapeworm is known to occur in rats adds complexity to the matter. For long, indeed, it was the custom to consider the two as in every respect identical, but certain experimental results have served to cast doubt on this assumption.

The problem, apparently simple in essence, presents unexpected difficulties, and to me there seems the necessity that more than usual care should be exercised in giving expression to any opinion dealing with it. On that account I venture to correct a slightly misleading statement occurring in a recent issue of the *Tropical Diseases Bulletin* (vol. xx., No. 2) to the effect that Nicoll and Minchin claim to have obtained cysticercoids of this species in fleas. As one of the writers to whom this "claim" is attributed, I may be allowed to state that no claim was intended and there is nothing in the published report (Proc. Zool. Soc., 1911) to suggest such. The intricacy of the subject was perfectly familiar to me at the time and, moreover, my friend, the late Prof. Minchin, was, I take it, too well acquainted with the pitfalls of experimental research to associate his name with the publication of an assertion the correctness of which had not been satisfactorily demonstrated.

I may note that, following the publication of our communication to the Zoological Society, further investigations were carried out but with no result sufficiently unequivocal to justify definite statement. The matter has since been taken up by other workers, but it is unnecessary here to enter comment on their results.

I am, Sir, yours faithfully,

London, S.W., April 12th, 1923.

WM. NICOLL.

THE ADMINISTRATION OF ANTI-DIPHThERIC SERUM.

To the Editor of THE LANCET.

SIR.—The annotation in your issue of April 7th on practical points in the administration of anti-diphtheritic serum seems to me an unfortunate one, for while very properly calling attention to the want of appreciation on the part of the general practitioner of the importance of early injection of antitoxin, it also raises a sort of academic red herring by asking for records of experience of its intravenous administration. I have had considerable experience of intravenous injection, but I am not going to write of it in conjunction with the necessity for the early and adequate administration of antitoxin. The one is of small importance, whereas the other is a matter of life and death.

In May, 1921, I had occasion to write you drawing attention to the delay in the treatment of diphtheria, and which I then said was greatly attributable to awaiting the result of bacteriological examination. That fact, and to a lesser extent the delay of parents seeking medical advice, are the cause of an appalling number of deaths. I think there has been somewhat less waiting for the bacteriological examination of late, and some medical officers of health post notices in public places urging parents to have all sore-throats seen by medical men. I wonder how many medical officers of health do this?

Dr. B. A. Peters, in his letter in your issue of April 14th, tells us that the M.O.H. in his area circulates all practitioners from time to time advising the dosage which is based on the type of the disease prevalent at the time, and he adds that he thinks this a wiser plan than attempting to set up standards for

the whole country. As far as I am aware, nothing in the past prevented this being done, but I wonder how many did it? It is possible, I suppose, that some medical officers of health are not very well versed in the dosage of diphtheria antitoxin, and I do not think very many would claim to be; indeed, I have been told by several medical practitioners that they were unable to procure from the M.O.H. more than 4000 units for a patient. Dr. Peters says the Ministry of Health advocates too low dosage to arrest the type of disease in his area. This is not so! The wording of the memorandum is:—

"Experience has shown that for the purposes of treatment it is seldom safe practice to rely on any dose which is less than 8000 units, whatever the age of the patient may be. The magnitude of the initial dose and the occasions on which subsequent doses are given must be determined by close observation of the case and it is impossible to lay down a stereotyped procedure. As an indication it may be stated, especially from the experience of Metropolitan Asylums Board hospitals, that when in a case seen early in the attack an initial dose of 8000 units (16,000 or more if the case is severe). . . ."

As I read this, the M.O.H. can advocate any dose to meet any variation in the type of the disease in his district so long as he does not advocate less than 8000 units, and I do not take it that Dr. Peters is objecting to this minimum dose.

What appears to me sad about Dr. Peters's letter, however, is his telling us that of the last 80 fatal cases in his hospital 19 received doses of from 2000 to 10,000 units within the first 48 hours while awaiting bacteriological confirmation before admission, but that these amounts were insufficient to prevent death. I imagine most of them would have recovered if all had received an initial dose of 8000 units or more, as advised by the Ministry of Health; and at all events either wrong advice as to dosage was given or the medical practitioners did not take it.

I am, Sir, yours faithfully,

FREDERIC THOMSON.

North-Eastern Hospital, South Tottenham,
April 14th, 1923.

ALCOHOL AND INSANITY.

To the Editor of THE LANCET.

SIR.—If anyone chooses to assert, without other evidence than is provided by his own inner consciousness, that alcoholism (or tea-drinking, or smoking, or newspaper reading) is the chief cause of insanity, then, according to Dr. S. Wyard, the assertion is to be accepted until it is disproved, the burden of disproof resting on the sceptic. It is not enough to show that the elimination of an alleged chief cause has failed to bring about any decrease of insanity. That is, it seems, quite irrelevant unless it is also proved that none of the other innumerable antecedent conditions, to which causal influence may conceivably be imputed, have increased in proportion to the diminution of the supposed chief factor. If that is Dr. Wyard's argument, discussion can hardly be profitable.

I am, Sir, yours faithfully,

W. C. SULLIVAN.

Broadmoor, Crowthorne, Berks, April 15th, 1923.

WOMEN IN THE POST OFFICE MEDICAL DEPARTMENT.

To the Editor of THE LANCET.

SIR.—I shall be obliged if you will allow me briefly to reply to the letters on the above subject in your issue of March 17th.

Lady Barrett does not point out any misleading statement in my former letter. An expression of opinion is not a misleading statement, and I have given examples of men having to accept lower salaries in consequence of the employment of women in the above department.

I have nowhere suggested that any particular class of qualified women was not available; but that it was not necessary. In the P.O. medical service all the women and the men are under the chief and second M.O.'s. The women's branch and the assistant M.O.'s (men) branch are separate and distinct practices. Though a woman with 30 years' service may be receiving a larger salary than a man assistant in his early service she has nothing whatever to do with his work, administratively. On the other hand, in the absence of the chief or second M.O.'s the men assistants move up, and become acting chief and second M.O.'s; thus the women M.O.'s come under their supervision. A woman is never called upon to act as chief or second M.O. The first assistant M.O. (men) can count upon being acting C.M.O. for short periods during the year, and acting second M.O. for at least four months. The second assistant M.O. will act as second M.O. for shorter periods. For this work they receive no extra pay whatever beyond the slight difference on scale between the assistant M.O.'s male and female. If the Federation does not dispute the justice of demanding a higher standard of qualification and experience for the higher posts why deny the right of the men, who possess these essentials, to a slightly higher rate of pay than a woman who never performs these duties? How can it be maintained that the responsibilities of the men and women M.O.'s are equal and that they do exactly similar work? This is one instance only to the contrary.

In my last letter I dealt with the manifesto wherein was the statement that one woman—a candidate for an appointment in 1911—withdrawed her application when she was informed by some unknown person that she would not receive the same rate of pay as the men received for similar work. By March 17th the one has budded into several. Apparently these women were satisfied with the particulars of the appointment supplied to them, and before anyone can discuss the matter we should be informed how the names and addresses of the applicants became available, and the nature of the communication they received. Possibly the information was inaccurate and they withdrew under misapprehension.

One word about these traditional loyalties of the medical profession and standing together sentiments. Remembering that the women have nothing whatever to do with the work of the men, and turning again to the manifesto, we find that in 1920 the female M.O. constituted herself a court of inquiry into the capabilities of the men. She called the late C.M.O. as a witness, then broadcasted with the aid of the Federation her comparison of the professional merits of the men and women. The men had no say in the matter. Is this a woman's way of showing traditional loyalty to her department and colleagues?

Medica states that the first woman appointed was placed third from the top, but neglects to say this was the bottom position on the day staff. She should read her letters more carefully if she wishes your readers to think I have stated that woman's work is valueless. The retirement—I in 41 years—was taken from the manifesto, and I said nothing about past holders of office, and plainly referred to present conditions. There are no such titles as "senior" or "principal" female M.O.'s in the P.O., and the fact that during the past 40 years the female M.O. has performed one solitary journey into the country, when accompanied by one of her superior officers (men), proves my statement that whilst men assistant M.O.'s frequently do this kind of work, the women assistants never do it—another illustration of the fact that the women assistants do not perform "exactly similar work" to the men. The appointment in 1889 was under no different conditions to those preceding it.

That the P.O. is justified in expecting a higher qualification and experience from men than women is obvious. I am, Sir, yours faithfully,

April 9th, 1923.

CLERICUS.

The Services.

ROYAL ARMY MEDICAL CORPS: EXAMINATION FOR COMMISSIONS.

AN examination for not less than 20 commissions in the R.A.M.C. will be held on August 1st. Applications to compete should be made to the Secretary, War Office, not later than July 20th. The presence of candidates will be required in London from July 30th. Prospective candidates can obtain a full statement of the duties and emoluments of the service on written application to the Secretary (A.M.D. 1), War Office, Whitehall, S.W. 1.

ROYAL NAVAL MEDICAL SERVICE.

R. W. Higgins to be Surg. Lieut.

ROYAL NAVAL VOLUNTEER RESERVE.

G. F. S. Parker (late temp. Surg. on probation) to be Surg. Sub-Lieut.

ROYAL ARMY MEDICAL CORPS.

Maj. R. C. Wilson to be Lt.-Col., vice Lt.-Col. and Bt. Col. J. S. Gallie, promoted.

Cpts. G. A. E. Argo (who is granted the rank of Maj.) and S. S. Crosse retire, receiving a gratuity.

Cpts. R. Fisher and H. H. Brown to be Maj.

Capt. W. J. Dowling relinquishes his commn. on account of ill-health contracted on active service and retains the rank of Capt.

Capt. M. S. Double relinquishes his commn. and is granted the rank of Maj.

General Hospitals: The undermentioned officers having attained the age limit are retired and retain their rank except where otherwise stated: Lt.-Cols. (Bt. Col.) W. J. Maurice, W. T. Brooks, W. Collier, and R. H. A. White-locke; Maj. Sir G. S. Abram, A. P. Dodds-Parker (granted the rank of Lt.-Col.), L. M. Guilding, E. Mallam, J. A. P. Price, W. A. P. Waters, J. C. R. Freeborn, W. J. Turrell, R. G. P. Lansdown (granted the rank of Lt.-Col.), and F. H. Edgeworth; Cpts. N. B. Clowes, C. A. Coventon, W. Duigan, G. H. R. Holden, G. F. Murrell, W. B. Prowse, R. Ritson (granted the rank of Maj.), R. H. Sankey, A. L. Ormerod, J. F. Robinson, R. G. Lynam, F. Clarke, E. W. S. Rowland, T. B. Marshall, A. G. Kewley (granted the rank of Maj.), F. G. Gardner, J. Gardiner, E. Morton, and J. Henderson (granted the rank of Maj.).

Cpts. W. A. Campbell (granted the rank of Maj.) and A. Mitchell (retaining the rank of Capt.) relinquish their commns.

MILITIA.

Capt. and Bt. Maj. L. W. O. Taylor to be Maj.

TERRITORIAL ARMY.

Supernumerary for Service with the O.T.C.: Capt. C. J. A. Woodside to be Lt. for service with the Medical Unit of the Belfast University Contingent, O.T.C., and relinquishes the rank of Capt.

TERRITORIAL ARMY RESERVE.

Capt. C. A. Pannett, from 3rd Lond. Gen. Hospital, to be Maj.

ROYAL AIR FORCE.

The following Flight-Lts. are transferred to the Reserve Class D.: O. St.L. Campion and M. J. Cahalane.

INDIAN MEDICAL SERVICE.

Lt.-Col. P. Dee to be Col.

Cpts. C. A. Wood, J. A. Sinton, D. FitzG. Murphy, E. E. Doyle, and C. M. Plumptre to be Maj.

Nagendra Narain Majumdar to be Captain on relinquishment of his temp. commn.

Col. A. E. C. Keble, late R.A.M.C., has been appointed a Commander of the Military Division of the Order of the British Empire, and Capt. (Acting Maj.) G. A. F. Argo, R.A.M.C., Capt. (Temp. Maj.) J. M. MacKenzie, R.A.M.C., Capt. (Acting Maj.) M. P. Power, R.A.M.C., and Temp. Capt. J. S. Pinto, I.M.S., to be officers of the Military Division of the same Order for services rendered in the Field with the Waziristan Force.

Obituary.

ARTHUR CARLYLE LATHAM, M.A. OXF. AND
CAMB., M.D. OXF., F.R.C.P. LOND.,
PHYSICIAN TO ST. GEORGE'S HOSPITAL, AND LATE DEAN
OF THE MEDICAL SCHOOL.

WE regret to announce the death of Dr. Arthur Carlyle Latham, physician to St. George's Hospital, which occurred at a nursing home on Friday last, April 13th.

Arthur Latham, born 56 years ago at Cambridge, was the last surviving son of Peter Wallwork Latham, who was for 20 years Downing Professor of Medicine at Cambridge, and whose ninetieth birthday we recently commented upon in THE LANCET. He was educated at Fettes and Balliol College, Oxford, and obtained a first-class in natural science schools, winning also the Radcliffe Travelling Scholarship and being Research Scholar of the Grocers' Company. He completed his medical education at St. George's Hospital, where he was University scholar, afterwards periodically studying at Vienna, Heidelberg, and Berlin, and becoming the translator of Bing's "Pharmacology" and Limbeck's "Pathology of the Blood."

He was promptly elected assistant physician to the hospital and also to the Brompton Hospital for Diseases of the Chest. At St. George's Hospital he soon made his mark both as a teacher and clinician, while he was dean of the medical school at a trying time in the educational history of the hospital. In 1902 he won in open competition the first prize for an essay in connexion with the erection of a sanatorium in England for tuberculosis (King Edward VII. Sanatorium), and the publicity which attended the scheme and the award of prizes considerably enhanced his reputation as an authority on tuberculosis with the lay world, while it was already high among his colleagues. It was an unfortunate circumstance that he should, not long afterwards, have severed abruptly his association with the Brompton Hospital, but he had become connected with the Mount Vernon Hospital for Diseases of the Chest, and felt that in the general wards of St. George's, at his special hospital, and in his private practice he would never have any lack of clinical material. None the less Latham deprived himself of great chances of professional coöperation in matters in which he was deeply interested, and it was always felt by his friends that he had made a tactical error. Probably, however, his practice did not suffer thereby, for he undoubtedly became a general consultant of great repute, whose advice was specially sought in tuberculosis and pulmonary and cardiac disease.

Apart from his distinction as a clinician he earned a high reputation as an organiser, and when in 1907 practically all the metropolitan medical societies, save the Medical Society of London, were combined to constitute the Royal Society of Medicine, Latham, who had given endless time and trouble to assist Sir William Church and Sir John MacAlister in bringing about the movement, was elected one of the first honorary secretaries, Mr. H. S. Pendlebury being the other. This post he held for five years, and all those who worked with him can testify to his unsparing and self-sacrificing zeal, but outside his circle of collaborators little was known of the part that he played. And it may here be added that throughout his life Latham's object seemed to be to conceal his forethought for others, his high professional standards, and his eagerness to advance alike the cause of scientific medicine and the prospects of those who live by our calling. To hear him talk was to gather the impression that he was a cold and cynical man; to follow his actions was to find him revealed as the exact opposite.

From a colleague who was particularly associated with him in connexion with the treatment of tuberculosis we have received the following estimate of Latham as a physician: "Arthur Latham struck all

who came into professional connexion with him as possessing to a highly developed degree the instincts of the physician. He owed remarkable success in diagnosis, alike to his close and learned observation of pathological phenomena and to his broad-minded attitude towards life, which enabled him to make due allowances for the patient's general constitution, methods of living, and psychical make-up. It was this range of observation which used to surprise his colleagues when its results appeared in the form of instinctive surmises. His help was largely sought from an early point in his career as a consulting physician, but he had not the temperament to make himself personally popular either with practitioners or with patients. He was brief, abrupt, and dogmatic; he laid down the appropriate course to be pursued in terms which were not always agreeable to others, and it is known that some of these resented their inability to produce upon him the impression which they considered was the right one. No desire to be agreeable to any patient would allow Latham to permit a latitude which he did not consider was in the interest of the subject. His insistence upon a strict interpretation of the advice which he tendered brought occasional antagonism to him from relatives of his patients, and the readiness in such circumstances with which he appeared to welcome a difference of opinion gave a wrong view. He appeared as an arrogant man, whereas he was thoughtful and generous in directions where he felt that these virtues should be exercised. He was very impatient with all who tried to deceive him, and too intellectually capable not to resent the attitude of those who deceived themselves."

Latham was not a prolific writer, and confessed to being without the necessary patience to bring what he wrote up to his ideals. But to the "System of Treatment," which he edited with Sir Crisp English, he contributed certain sections which illustrated both the range and exactness of his knowledge; he was the author of a convenient "Dictionary of Medical Treatment" intended for junior practitioners and students, with whose dilemmas he was always in sympathy; and his book "The Early Diagnosis and Modern Treatment of Pulmonary Consumption" reached a fourth edition. On the infrequent occasions of contribution to debates or medical journals, what he had to say was always worth saying, and his last paper in our columns, upon bronchial asthma, aroused much interest in the connexion between the disorder and protein sensitisation. He was an admirable public speaker, as all will recall who heard his various addresses on the proper relation of medicine to the public, delivered in connexion with the Federation of Medical and Allied Societies, in whose objects he was deeply interested.

British medicine and the British public have lost much in the person of Arthur Latham.

Dr. LEONARD WILLIAMS, in the following brief appreciation, bears witness to the qualities of his dead friend:—

"To appreciate Arthur Latham's great qualities it was necessary to have known him *dans son intimité*; and into that *intimité* very few were admitted. About 15 years ago circumstances pushed me suddenly beyond the rather forbidding portals, and since that time I had known him very intimately, in many ways more intimately probably than any one else. There has seldom been a man with a more impenetrable mask; seldom, indeed, one whose mask was more worth penetrating. To casual observers, and even to many who were the reverse of casual, he seemed to be the embodiment of clear-headed, far-seeing efficiency—that, and little else. In reality, beneath the polished steel of his orderly intellect, and of his incisive and cynical speech, there lay concealed an emotionalist, with one of the tenderest hearts that ever beat within a human breast. It was seemingly ordained that he should suffer, and suffer horribly, through that very tenderness. It was his lot to see his brothers die early and tragical deaths; the only

two men whom he really loved, Herbert Allingham and John Nachbar, were taken from him; the one dramatically, the other slowly and inevitably. His domestic life was a long-drawn-out pattern of unflinchingly courageous misery. He was greatly gifted. He had one of the acutest constructive brains that I have ever come in contact with, and his destructive criticism was as sound as it was usually merciless. The real distinction of his fine character and great attainments was written on his Napoleonic features; and so, latterly, was his acute and constant physical and mental suffering. The customary gravity of his face would occasionally be relieved by a smile of almost feminine sweetness and beauty, for he loved the lovable in life and had a keen and subtle sense of humour. He has succumbed to a long, painful, and exhausting illness, and, fond as I was of him, and much as I shall miss him, I cannot regret his release. He was a lonely man, who had outlived his ambitions and lost his illusions: may he rest in peace."

THE LATE DR. ALFRED GEORGE SIMMINS: AN APPEAL.

OUR readers may have noticed in THE LANCET of March 31st the coincidence of the death on March 23rd of Temp.-Surg. Lieut. Alfred George Simmins, R.N., and his wife. The double event was due to influenza, and the husband was only 32 years of age, the wife being just his senior. Dr. Simmins was educated at Guy's and Westminster Hospitals, qualified in 1914, and on the outbreak of war gave up a post in the Metropolitan Asylums Board to serve in the Navy. During his period of service he took the degrees of M.B., B.S. Lond. Demobilised in 1919 he acted for a time as medical registrar at Westminster Hospital before succeeding Dr. Croly in general practice at Hornsey. His excellent record was a guarantee of professional success, to which death has put so tragic a term.

We have received the following moving appeal on behalf of the children left orphaned in this pathetic manner: "They leave three little children, for only one of whom—a boy of 6—some provision has been made. No funds are available for the education of the other two, a girl and boy, aged 4 years and 15 months respectively, and they are left penniless orphans. At the time of the catastrophe Simmins was making good, but there was an overdraft at his bank as a result of the purchase of his practice, and he was precluded from the ordinary terms of life insurance by albuminuria, the relic of a previous attack of influenza. Even in these case-hardened days it would be difficult to find a parallel to such a combination of misfortunes, and we are proud to believe that our appeal will evoke a generous response from all branches of the profession. A committee is in process of formation, and several generous donations have already been received."

The appeal is signed by Sir William Hale-White, Sir James Purves-Stewart, Dr. G. F. Still, Dr. Henry C. Semon, and Dr. David Nabarro. Cheques and postal orders should be sent to the Treasurer, Simmins Appeal Fund, and addressed Royal Northern Hospital, Holloway-road, N. 7.

The following contributions have already been received:—

	£	s.	d.
Dr. G. F. Still	50	0	0
Mr. L. E. Barrington-Ward, F.R.C.S.; Mr. H. Tyrrell Gray, F.R.C.S.; Sir William Hale-White; Sir James Purves-Stewart; Dr. Henry C. Semon; Mr. G. E. Waugh, F.R.C.S.	10	10	0
Mr. H. A. T. Fairbank, F.R.C.S.; Dr. F. John Poynton	10	0	0
Dr. Joseph Birt; Dr. R. S. Frew; Sir Alfred D. Fripp; Dr. C. B. Heald; Mr. T. Twistington Higgins, F.R.C.S.; Sir W. Arbuthnot Lane; Dr. David Nabarro; Dr. Wilfred J. Pearson; Dr. Hugh R. Phillips; Dr. Harold Sington (first donation); Dr. Hugh Thursfield	5	5	0
Mr. P. G. Doyne, F.R.C.S.; Dr. A. M. H. Gray; Dr. Bertram Shires	5	0	0
Mr. A. T. Pitts, L.D.S., M.R.C.S.	3	3	0

INSULIN AND THE TREATMENT OF DIABETES.

ON Nov. 17th, 1922, and Feb. 21st, 1923,¹ the Medical Research Council published statements explaining the measures which have been taken in this country for studying the production and the properties of insulin, and for promoting its manufacture here upon a commercial scale. The following additional statement can now be made:—

Large-Scale Production.

British-made insulin is now being supplied from two sources—namely, the firm of the British Drug Houses, Ltd., in conjunction for this purpose with Messrs. Allen and Hanburys, and that of Messrs. Burroughs Wellcome and Co. These firms, who undertook the manufacture under agreement with the Medical Research Council, have satisfied all the requirements and tests of the Council for authenticity, standard value, therapeutic efficiency, and sterility of the product sold. It is hoped that these sources of supply will be augmented at an early date by three other firms in different parts of Great Britain who are under similar agreements with the Council. It should be understood that the rapid progress made by these five firms since the end of last November, and the actual achievement of successful and guaranteed supply within a period of little more than four months from the first attempts at large-scale production, have been made in spite of some serious handicaps. The large quantities of alcohol used for extraction brought the manufacture under almost prohibitive restrictions until certain concessions were made by the Commissioners of Customs and Excise, which allowed specially denatured alcohol to be used duty-free. The embargo upon importation of Canadian cattle had greatly reduced the supply of fresh raw pancreas material in this country and a good deal of improvisation and initiative have been necessary for the effective organisation of the available supply of raw material during recent months. The only limit now placed, and likely to be placed for some time, upon British production is the limitation of raw material available under suitable conditions.

In the meantime, Messrs. Eli Lilly and Co., of Indianapolis, Indiana, working under agreement with the University of Toronto, have been proceeding towards large-scale production since the early summer of 1922. By the courtesy of the University, this firm was able to submit samples of their insulin product to the Medical Research Council in February last for testing. At the end of March, Messrs. Eli Lilly found themselves in a position to offer the Medical Research Council a considerable supply of their product for distribution in this country under similar restrictions to those at present governing distribution during a provisional period in the United States and Canada—namely, to approved hospitals and to physicians with approved clinical facilities. In view of the urgency of the demand, the Council cabled for this supplementary American supply, of which the first consignment is expected to arrive during the present week. It is a remarkable coincidence that the products of large-scale American production should become available here only a few days after the first commercial supply of British insulin.

American and British Sources.

The Medical Research Council have arranged that the insulin of American manufacture should be distributed by those British firms whose own product is already available or may hereafter become available and the amount distributed by each British firm will be in proportion to the volume of its own production. Both British and American insulin will be sold here only under that name (except for the addition of mark or brands indicating origin). A maximum selling price has been fixed by agreement with the Council for a short provisional period, and there is

¹ THE LANCET, Nov. 18th, 1922, Feb. 24th, 1923.

probability of its being reduced at an early date. The British firms have adopted a method of purification of the final product worked out by Dr. Dudley at the National Institute for Medical Research. By this method it is possible to get rid of over 90 per cent. of the solid matter in the crude end-product of the original process, and it allows the manufacturers to offer the active principle in the form of hydrochloride in highly concentrated form, freed from accidental irritants and other substances. For the avoidance of improper exploitation of this valuable process, provisional application has been filed by Dr. H. W. Dudley, jointly with the Medical Research Council, for patent rights. It is probable that in the near future the American supplies will be submitted to the same process and offered in the same form.

All the supplies now available have passed suitable laboratory and clinical tests for purity, potency, and sterility. The physiological unitage originally indicated by the first producers of insulin in the University of Toronto has not been retained. By agreement with the University, the American manufacturing firm has made current in the United States a unit having the approximate value of one-third of the original Toronto unit. The Medical Research Council have decided to adopt this smaller unit, so that all the insulin now made available in this country, whether British or American, will be standardised to a common unit value. Every batch put upon sale, of whatever origin, will be biologically tested under the supervision of the Council, and every preparation sold must bear a number corresponding with that of the batch from which it has been drawn.

Distribution of the Available Supply.

For a provisional period the Council have retained, under their agreements with the manufacturers, control over the distribution of the commercial supplies analogous to that exercised by the University of Toronto over the products of American manufacture. It is clearly desirable, apart from other considerations, that now, and at least until the supply is more than equal to the demand, the available insulin shall be distributed so as to reach those patients whose need is greatest, and so as to be placed in the hands by which it can be administered to the greatest effect and with the least waste. Difficult problems arise here of interest and importance to the public, to the medical profession, and to hospital administrations.

The research work, both in the laboratory and in the wards, which has brought manufacture in this country to its present pitch, and all the connected problems of standardisation and further research work, fall properly within the sphere of the Medical Research Council. These medical administrative problems of distribution, on the other hand, have been submitted by the Council to the Minister of Health within whose responsibility they properly lie. Having regard to the special nature and urgency of the occasion, the Minister has appointed a small Committee to advise him upon the subject, composed as follows: Sir George Newman (chairman), Dr. R. A. Bolam, Sir Walter Fletcher, Sir Humphry Rolleston, Dr. Alfred Salter, M.P., Dr. G. F. McCleary (secretary) (address, Ministry of Health, Whitehall).

To avoid any unnecessary delay, provisional authority had been given to the firms to distribute insulin to various large hospitals, and the first British-made insulin was actually so supplied on April 12th. On the advice of this Committee, manufacturers will be directed, during the present period of restricted production, to supply insulin only to those hospitals and to those registered medical practitioners who have proper facilities at their command for making accurate blood-sugar determinations.

Restrictions Imposed.

Each hospital and practitioner so supplied will undertake to observe the following restrictions upon the use of insulin:—

1. Careful correlation will be made of the diet, of the blood-sugar changes, and of the insulin dosage in each case. For

at least one group of cases it is known already that the insulin dosage can be reduced progressively with suitable adjustment of diet. This reduction allows economy of insulin, besides the advantage it may bring to the patient.

2. Insulin will not be given to those whose symptoms can be controlled by moderate restrictions of diet. There should be no luxury use of insulin till supplies are abundant.

3. It is understood, of course, that in emergency and apart from the careful correlation just mentioned, insulin will be given to those in diabetic coma or those nearly approaching it, and it may be given to those with diabetic symptoms needing special preparation for some surgical operation.

4. Care will be taken to avoid the danger of giving insulin to non-diabetic cases (e.g., to patients with renal glycosuria).

Hospitals or practitioners desiring supplies for immediate use should apply to one or other of the British firms named above.

It is hoped that at a very early date preliminary communication will be made of the results of the insulin treatment which has been in progress during the past months in the hospitals at London, Edinburgh, Glasgow, and Sheffield, named in the earlier statement by the Council, in order that experience gained in this clinical research work may be put at the disposal of the profession for their information and guidance.

Medical News.

CONJOINT EXAMINATIONS IN IRELAND BY THE ROYAL COLLEGE OF PHYSICIANS AND THE ROYAL COLLEGE OF SURGEONS.—The following candidates passed the spring examinations:—

Third Professional Examination.—Anna Allen, P. M. Banim, Moira E. Connolly, Bridget Crawford, T. A. Cronhelm, J. Dalrymple, Pauline M. Dooley, R. G. Freeman, V. D. Gordon, J. A. Hynes, Wilhelmina C. Maguire, M. A. Monahan, A. French O'Carroll, W. O'Connor, and P. C. Raftery.

Final Professional Examination.—Thomas Aitken Austin, Alan Plewman Brown, Josephine Alcorn Carson, Maurice Cremin, Victoria Elizabeth Davidson, Evelyn Sylvia Delany, John Francis Devlin, Douglas Arthur T. Eaton, Isaac Jacob Eppel, Thomas Valentine Fitzpatrick, Sydney George Gilmore, Alphonsus Joseph Harte, Michael Joseph O'Riordan, Robert Dobbs Seale, and Vincent Francis Walsh.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At examinations recently held the following were successful:—

THIRD EXAMINATION.

Alastair F. B. Mackay, Eleanor P. Topping, William A. Kemp, Charles Campbell, John S. Caldwell, Radcliffe D. Jones, Joseph F. Sweeney, Carapiet Aviet Basil, David D. Radford, Alexander J. M. Findlater, Harold V. R. McKinlay, Constance P. H. Hunter, James D. Edminson, Frederick Blacklee, William Rogers, John C. Shiach, Mollie F. Churcher, Cecil J. R. Morrison, Adam S. Gordon, Albert E. Williamson, Moss M. Bronstein, Gavin J. Bell, Donald L. Crawford, Petrus Johannes Badenhorst, James K. Hunter, George R. Mitchell, and Alexander S. Ballantine.

Pathology.—Leslie V. Sherrin.

Materia Medica.—John B. Hutchison, John Lees, William McKim, William A. Evans, Margaret M. McCusker, Joseph Horsham, Joseph B. Stromier, Winifred G. Price, David D. H. Craig, John M. Coutts, Sarah Boyle, Robert H. McKinnon, John J. MacKenzie, Irma E. L. Mackenzie, David Lumsden, Lewis Mackenzie, Douglas B. Craig, John J. McKenna, and Charles E. Millen.

FINAL EXAMINATION.

The following candidates having passed the Final Examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. & S.G.:—

James M. McLintock, Minnie E. McMurray, John M. Cockburn, Behari Lal Chopra, Nicholas J. Laubscher, William N. Stirling, George Abeysinche Weera Wickramasuriya, Daniel Maximos, Dinbai Jhangar Dubash, Edward R. C. Walker, Philip G. Bainbridge, William Paris, Jonathan Johan du Pre le Roux, James H. Murrell, Sarel Jacob Reich, Daivasikamany Kanaka Sabhesan, Ernest Levine, Louis Jaffit, John J. Mann, Don Valentine Walpole, and James S. Bizzett.

Medicine.—Hari Prasanna Sen, Wilhelmina C. Storrie, Ruby S. Beveridge, Eliazar Gelfer, Donald G. Coutts, Martha D. Devon, Maurice N. Gelb, George A. P. McConey, and Duncan R. Nicol.

Surgery.—Cyril A. Paulusz and Maurice N. Gelb.

Midwifery.—Thomas F. Kelly, Ruby S. Beveridge, Cyril A. Paulusz, William E. Haydon, Martha D. Devon, George A. P. McConey, and Thomas J. Muir.

Medical Jurisprudence.—John A. McCann, John S. Whiteside, Joseph McAuley, Anna G. Laubscher, Darwish Mustafa Safwat, Eliazar Gelfer, Harold V. R. McKinlay, Arthur W. H. Noble, James Ryan, Lauchlan McLean, and Mary C. Semple.

HUNTERIAN SOCIETY.—The annual general meeting will be held on April 23rd, at 8.15 P.M., in the Small Hall, the Royal Society of Medicine, 1, Wimpole-street, London, W. 1. Dr. Hingston Fox, who for some years has been engaged in compiling the centenary history of the society, will discourse on some of the more interesting topics and personalities connected with the society under the headings: Jonathan Hutchinson the Naturalist, Henry Gawen Sutton the Philosopher, and Hughlings Jackson the Seer. The address will be illustrated with the epidiascope.

THE ROYAL SOCIETY OF MEDICINE: The Sir William Dalby Memorial Prize.—Lady Dalby, widow of the late Sir William Dalby, has handed to the Royal Society of Medicine £500 for the purpose of providing a perpetual memorial of her distinguished husband. The trust deed provides that the interest on the capital sum is to be accumulated for five years when the product, less expenses, is to be awarded as a prize to the person who during the previous five years has produced the best original work, done or published, for the advancement of otology. The prize will be awarded by the Council of the Royal Society of Medicine upon the recommendation of the president and vice-presidents of the Section of Otology.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A quarterly Council was held on April 12th, Sir Anthony Bowlby presiding.—The Secretary reported the death on March 18th, at the age of 61, of Sir William Thorburn, and a vote of condolence was passed.—The President reported that the vacancy in the Council thus occasioned would be filled at the meeting of the Fellows on July 5th next, and that the vacancy on the Court of Examiners would be filled at the next meeting of the Council on May 10th.—A report was read from the Secretary respecting candidates found qualified for the Diploma of Member, and diplomas were granted to the following four candidates: Bernard Bourke (Dublin), Emmie Dorothy Fenwick (Royal Free and St. Mary's), Marjorie Annie Godfrey (Royal Free), and Naja R. Mucadam (Bombay and Royal Free).—A report was read from the Secretary respecting candidates found qualified for the diploma of the Licence in Dental Surgery, and a diploma was awarded to Mr. D. E. Thomas (Pennsylvania and Middlesex).—It was reported that the Jacksonian Prize for the year 1922 had been awarded to Mr. Sidney Forsdike for an essay on the Effects Produced by Radium upon Living Tissues, with Special Reference to its Use in the Treatment of Malignant Diseases.—The Council decided that the subject for the Jacksonian Prize for 1923 would be the Pathology, Diagnosis and Treatment of (F)osphageal Obstruction.—Mr. Douglas Gabell was elected a Member of the Board of Examiners in Dental Surgery.—Sir Arthur Keith was appointed Thomas Vicary lecturer for the ensuing year.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—The annual congress will be held from April 26th to 28th at the Royal Society of Medicine, 1, Wimpole-street, London, W. 1, on Thursday, April 26th, Dr. A. Maitland Ramsay presiding. On the first morning the President will give his opening address. Papers will be read by Mr. E. Treacher Collins and by Sir William Lister on the Ætiology of Angioid Streaks in the Fundus Oculi, and by Mr. R. Affleck Greeves and Mr. R. Foster Moore, on a Series of Consecutive Cases of Cataract Extraction by Barraquer's Method. Mr. D. V. Giri will offer Some Observations on Intracapsular Extraction of Cataract, with Description of a Simple Technique; and Mr. Charles Killick will discuss a Series of a Hundred Cases of Cataract Extraction Removed under a Subconjunctival Bridge. In the afternoon a discussion on the Disorders of the Blood and their Ophthalmological Manifestations will be opened by Sir Humphry Rolleston, Sir Frederick Andrewes, F.R.S., and Dr. W. C. Souter. Mr. R. Rutson James and Dr. A. J. Ballantyne will speak, and the latter will communicate a paper entitled Some Illustrations of Retinal Vascular Disease, and of Fundus Lesions in Diseases of the Blood. At 5 P.M. the Bowman lecture will be delivered by Prof. George E. de Schweinitz, president of the American Medical Association, on Certain Ocular Aspects of Pituitary Body Disorders, mainly exclusive of the Usual Central and Peripheral Hemiopic Field Defects. At 7.30 P.M. members will dine together at the Langham Hotel, Portland-place, London, W. 1. On April 27th, in the morning, a discussion on the Diagnostic Significance of Proptosis will be opened by Mr. Wilfred Trotter, Mr. Herbert Fisher, and Dr. Angus MacGillivray. The following also intend to speak: Mr. Percy Flemming, Dr. T. H. G. Shore, and Mr. P. G. Doyne. Papers will be read by Mr. W. T. Holmes Spicer on Secondary Corneal Opacities, and by Mr. F. A. Williamson-Noble on Macular Changes in Thrombosis of the Central Retinal Vein. In the afternoon a clinical meeting will be held at the London Hospital. In the evening demonstrations will be given by Mr. Humphrey Neame, Mr. F. A.

Ross and Dr. Shephard-Walwyn, Mr. B. T. Lang, Mr. A. Beck Cluckie, Mr. Basil Graves, Mr. John Rowan, Mr. G. F. Alexander, Mr. Leslie Buchanan, and Mr. R. E. Wright. On April 28th papers will be contributed by Dr. Angus MacGillivray, Mr. Leslie Buchanan, Mr. Percival J. Hay, Mr. Humphrey Neame, Mr. W. B. Inglis Pollock, Mr. Lindsay Rea, and Mr. G. F. Alexander.

TUBERCULOSIS SOCIETY.—An ordinary meeting will be held on Monday, April 23rd, at 8 P.M., at the Margaret-street Hospital, Margaret-street, London, W. 1, when Dr. A. K. Chalmers, M.O.H. for Glasgow, will read a paper on Housing and Tuberculosis.

ROYAL INSTITUTION.—On Tuesday, April 24th, Sir Arthur Keith will deliver at 3 P.M. a third lecture on the Machinery of Human Evolution. On Saturday, April 28th, at 3 P.M., Dr. Leonard Williams will deliver the first of two lectures on the Physical and Physiological Foundations of Character. The Friday evening discourse on April 27th, by Mr. C. V. Boys, will be on Measurement of the Heating Value of Gas; and that on May 4th by Prof. Soddy will be on the Origins of the Conception of Isotopes.

MEDICAL HYDROLOGY: LECTURES AND CLINICAL TEACHING AT THE UNIVERSITY OF LONDON.—A special course of lectures and demonstrations has been arranged by the London University Extension Board and a committee of the International Society of Medical Hydrology, and will be held at the laboratories of the University of London at South Kensington, and at two of the British spas, from May 29th to June 4th. All medical men interested in the therapeutic use of waters and baths are invited to take part in this course, of which full particulars will shortly be issued.

CONFERENCE ON THE MILK QUESTION.—A conference will be held at the house of the Royal Society of Arts, John-street, Adelphi, London, W.C. 2, on April 25th, at 4.30 P.M. Short papers will be read as follows: (1) The Arguments for Maintaining an Open Market for Fresh Milk, by Dr. R. Stenhouse Williams; (2) Changes in the Digestibility and Nutritive Value of Milk Induced by Heating, by Prof. J. C. Drummond; (3) The Effect of Heat on Some Physiological Principles in Milk, by Dr. S. S. Zilva. A demonstration of some of the chemical changes in milk on heating to various temperatures will be given by Capt. John Golding, and Mrs. A. T. R. Mattick, M.Sc. Mr. F. D. Acland, M.P., will preside.

CONGRESS OF DERMATOLOGY AND SYPHILIS.—A congress on dermatology and syphilis will be held at Strasbourg from July 25th to 27th, preceded by a congress on cancer (July 23rd and 24th), and followed by one on leprosy (July 28th to 31st), in connexion with the Pasteur celebrations, under the auspices of la Société française de Dermatologie et de Syphiligraphie of the Comité d'organisation de l'Association des Dermatologistes et Syphiligraphes de Langue française. Clinical cases will be shown and discussions will be held on the following papers: Sensitisation and Desensitisation in Skin Affections, by Dr. Ravaut (Paris) and Prof. Spillman (Nancy); Nævo-carcinomata, by Prof. Masson (Strasbourg) and Prof. Bruno Bloch (Zurich); the Treatment of Syphilis in the Early Stage, by Dr. Queyrat (Paris) and Prof. Malvoz (Liège); and the value of various ways of introducing Medicaments in the Treatment of Syphilis, by Dr. Milian (Paris) and Dr. Bodin (Rennes). Further information may be obtained from the president of the committee of organisation, 2, quai St. Nicolas à Strasbourg, to whom fees and communications must be sent before June 1st.

NATIONAL HEALTH INSURANCE IN IRISH FREE STATE: HOUSING COMMITTEES.—Our Dublin Correspondent writes: The National Health Insurance Commission recently obtained authority from the Free State Government to set up an advisory committee. In its letter of authority to set up the committee the Government was clear in insisting that the committee should limit itself strictly to insurance work and not trench on the functions of other Government departments. The first meeting of the advisory committee was held on April 12th, Sir Joseph Glynn, chairman of the commission, presiding. The committee includes representatives of the approved societies, of the insurance committees, of the medical and nursing professions, of the hospitals, and of the Labour party. The medical profession is represented (temporarily) by Mr. T. Hennessy and Dr. R. J. Rowlette. Other medical men present representing hospital interests were Mr. Horace Law and Dr. M. F. Cox. A discursive discussion took place on various points regarding the administration of the Insurance Acts, and resolutions were passed: (1) drawing attention to the need for the establishment of a system of medical treatment for the classes affected by the Insurance Acts; and (2) asking that provision should be made for carrying on medical research.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

THE BUDGET.

MR. BALDWIN'S first Budget, introduced on April 17th in the House of Commons, provides for a total expenditure of 816 million pounds and a probable surplus of 36 million pounds. The expected concessions were realised for various classes of the community—6d. off income-tax, 1d. off beer, the corporation profits tax halved, some abatement on mineral waters and ciders, and reduction of postal charges. An unexpected relief was offered to telephone subscribers. Mr. BALDWIN proposed to reserve 40 million pounds for sinking funds to cover obligations arising during the year, including interest on the American debt. "Our debt," he said, "to-day is insistently knocking at the door of this generation," and he did not regard his provision as likely unduly to ease the circumstances of our grandchildren.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 11TH.

Payments to Panel Practitioners.

Sir KINGSLEY WOOD asked the Minister of Health whether he contemplated any alteration in the terms of payment to doctors on the panel lists; and whether he proposed to consult with representatives of the approved societies on the matter.—Mr. NEVILLE CHAMBERLAIN replied: Before the expiry of the present agreement at the end of this year both the terms of service and the remuneration of insurance practitioners will have to be reconsidered. In reply to the second part of the question, the Insurance Consultative Council have already been consulted in regard to the terms of service and will be consulted also as to the rate of remuneration. There is no other body representative of all the approved societies, but I shall be prepared to receive representations from the principal groups before coming to a final decision.

Sir KINGSLEY WOOD: Is the right hon. gentleman aware that representatives of the medical profession have declined to meet representatives of approved societies to discuss this matter?—Mr. CHAMBERLAIN: No, Sir.

Major MACKENZIE WOOD: Does the right hon. gentleman think that this Council represents the approved societies?—Mr. CHAMBERLAIN: It is an elected body.

Sir KINGSLEY WOOD asked the Minister of Health the number of doctors on the panel list, and the approximate annual amount they received for their services.—Mr. CHAMBERLAIN replied: The total number of insurance practitioners in England and Wales according to the latest return is 12,588. The total payments to them in 1922 amounted to approximately £6,750,000.

THURSDAY, APRIL 12TH.

Physique of School-children at Whitehaven.

Mr. GAVAN-DUFFY asked the Minister of Health if his attention had been drawn to the statements made in the annual report of the medical officer of health for the borough of Whitehaven for 1922 to the effect that the physique of the school-children showed that there had been an appreciable deterioration from the standard of 1921, and that this was due to the low wages earned by the miners, resulting in a deterioration of the quality and quantity of the food supplied to them; and whether he would take immediate steps, by the rigid administration of the Maternity and Child Welfare Acts and the Provision of Meals Act, to check any further development of this physical deterioration among the children in Whitehaven and district.—Mr. NEVILLE CHAMBERLAIN replied: I have seen the report of the school medical officer, which is apparently the report referred to by the hon. Member. The question what meals should be provided by a local education authority to children attending public elementary schools in their area is one for the decision of the authority under Section 82 of the Education Act, 1921, and in the same way the administration of the Maternity and Child Welfare Acts is primarily a matter for the local authority. I may say, however, that the scheme of the Whitehaven town council under the latter Act includes the provision of milk in necessitous cases, and I have approved their estimate for this purpose.

Pension Cancellations on Medical Grounds.

Mr. HAYDAY asked the Minister of Pensions what was the number of pensions cancelled during the 12 months ending Dec. 31st, 1922, owing to change of diagnosis or change of entitlement on medical grounds, and what was the average duration of the pensions so cancelled.—Major TRYON replied: Out of some 600,000 cases which came up for reassessment during 1922, it was found necessary to

CHELSEA HOSPITAL FOR WOMEN.—The fifty-second annual general meeting of the governors will be held at the hospital on Tuesday, April 24th, at 4 P.M., when an important statement of policy will be made.

ILLUMINATING ENGINEERING SOCIETY.—A meeting will be held at the House of the Royal Society of Arts (John-street, Adelphi, London), at 8 P.M., on Tuesday, April 24th, when Mr. Leon Gaster, F.J.I., will open a discussion on Some Problems in the Lighting of Printing Works.

DONATIONS AND BEQUESTS.—Besides a gift of £2000 in connexion with the treatment of cancer at Hull Royal Infirmary, Mr. T. R. Ferens has placed the interest of £3000 at the disposal of the Governing Board to meet the working expenses involved. The principal itself will eventually revert to the infirmary.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN (UNIVERSITY OF LONDON).—A course of six post-graduate lectures on Ante-Natal Care will be given at the school, on Tuesdays, at 5 P.M., by Prof. A. Louise McIlroy, the first lecture on May 1st dealing with the Maintenance of Physiological Conditions during Pregnancy.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON).—A course of ten lectures on Psycho-Neuroses will be delivered in the anatomical theatre of the College by Dr. Millais Culpin, on Tuesdays and Fridays at 5.15 P.M., beginning May 1st. The lectures will deal with Instinct and Emotion; Dissociation; the Unconscious; the Dynamics of the Unconscious; Dreams; Symptomatology (2); Diagnosis; Treatment (2). The last lecture of the series is on June 1st.

INSTITUTE OF PATHOLOGY AND RESEARCH, ST. MARY'S HOSPITAL.—As in previous years a course of lectures on Pathological Research in Relation to Medicine has been arranged during the summer session at St. Mary's Hospital. The lectures will be given in the Bacteriological Department of the Institute on Thursday afternoons at 4.30 P.M., and the course will commence next Thursday with a lecture from Sir Almroth Wright, the principal of the Institute. The lectures are open to the medical profession and to all students in medical schools without fee; previous sessions have been largely attended and have proved of real value to the audiences. Subsequent lectures to be given by Prof. W. Bulloch, Dr. H. H. Dale, Prof. F. G. Hopkins, Dr. Bernard Hart, Dr. Leonard Hill, Dr. Alexander Fleming, and Prof. G. Dreyer will be announced in our Medical Diary.

SWEDISH SOCIETY OF PHYSICIANS.—The Section of Laryngology of the Swedish Society of Physicians has invited British representatives to deliver in Stockholm lectures on subjects with which their work has been identified. The meeting has been arranged for Whitsuntide and the following is a list of those who have accepted invitations, with the subject of their communication: Mr. Arthur Cheate: The Aetiology and Prevention of Chronic Middle Ear Suppuration. Sir St. Clair Thomson: Cancer of the Larynx. Dr. Logan Turner: The Occurrence of Metastatic Tumours in the Larynx, with the description of a case. Dr. Brown Kelly: The Significance of Certain Pharyngeal Signs and Symptoms.

On their way to Sweden the lecturers may join in the Summer Meeting of the Dutch Oto-Laryngological Society at The Hague on May 12th and 13th.

LEICESTER ROYAL INFIRMARY: ANNUAL REPORT. The 150th report of the infirmary, submitted to the annual meeting on April 18th, points out some directions which medical progress is likely to take in the near future, especially in connexion with the prevention of disease and the part which hospitals will play in dealing with the early symptoms of curable maladies. During the year under notice (1922) 3627 new in-patients were treated as compared with 3618 in 1921, while the average number of beds occupied was 255 and 252.5 in the two years respectively. The average cost per bed was £182 and the average cost per in-patient £11 9s. 10d. In the out-patient department there was an increase both in ordinary attendances and in accident cases over the figures for the preceding year, motor transport and other means of speedy locomotion being responsible for the large increase in the casualty category. In the venereal diseases department there were 429 males and 239 females treated among new cases; male attendances numbered 9990 and female 4972, the corresponding figures for 1921 being 505, 296, 10,792, and 5216 respectively. The total income for the year was £59,786, as against £61,112 in 1921, and the expenditure £62,452, as compared with £67,093 in 1921. Towards the £100,000, for which an appeal has been made on behalf of a new south wing, to provide for 93 patients, 66 new bedrooms for nurses, and an enlargement of the laundry, £60,000 have been already collected. To mark the third jubilee of the institution it is suggested that contributions should be sent in multiples of 12s. 6d., being 1d. a year since the foundation.

cancel entitlement to pension on medical grounds in less than one-half of 1 per cent. I regret that I am not in a position to state the average duration of these pensions.

Medical Evidence and Pension Claims.

Mr. HAYDAY asked the Minister of Pensions whether applications under Article 9 of the Warrant were now rejected unless the applicant could produce evidence of continuous medical treatment since the date of his discharge or demobilisation; and, if so, whether he had considered the hardship that was likely to arise from a man's inability to produce certificates covering a long period.—Major TRYON replied: The answer to the first part of the question is in the negative. While connexion between the disability claimed and the man's military or naval service can obviously best be established by medical evidence covering the period between discharge and the date of the claim, full weight is always given to evidence of other kinds which is frequently found sufficient to establish a claim to pension.

Pensioners Suffering from Bronchitis and Asthma.

Mr. CAIRNS asked the Minister of Pensions whether he was aware that there was a general impression that pensioners suffering from bronchitis and/or asthma were seriously under-assessed in respect of their degree of disablement; what was the number of pensioners in receipt of pension for bronchitis and/or asthma; and whether, owing to the nature of these diseases and the difficulty in arriving at a correct assessment during the two-minutes examination by a medical board, he would issue instructions that pensioners whose disability was bronchitis and/or asthma should be admitted to hospital for observation and that the re-survey board should be held prior to their discharge from the institution.—Major TRYON replied: The approximate number of pensions in payment in respect of affections of the respiratory system (other than tuberculosis) is 41,000. I am not aware of the impression referred to, nor do I consider that any such views, if held, would be well founded. Procedure on the lines suggested in the last part of the question has been in force for some time, and is acted upon wherever the circumstances of the case render such a course necessary. I may add that the hon. Member is mistaken as to the time occupied by an examination by a medical board. The average time given to cases of re-examination for renewal of pensions is more than a quarter of an hour, and to first claims or for final award the time given is usually over half an hour.

Charges for Massage and Electrical Treatment.

Mr. ARTHUR GREENWOOD asked the Minister of Pensions whether he was aware that in the cases of officers and nurses undergoing approved home treatment the authorised fee for combined massage and electrical treatment had been reduced from 7s. per visit to 3s. 6d. per visit, and that for massage treatment reduced from 3s. 6d. per visit to 2s. per visit; that in many cases it was not possible to obtain the treatment necessary at the authorised rates; and whether, if the authorised rates were reduced, he would give the commissioners of medical services in the regions discretionary power to sanction payments at higher rates to enable patients to obtain the treatment deemed necessary.—Major TRYON replied: There has been no recent change in the approved scale of charges for massage and electrical treatment given at home. The higher fees mentioned are sanctioned when the treatment is given at the patient's own home, but where the patient attends as an out-patient at an institution for the treatment the lower rates are applicable. Officers and nurses finding difficulty in obtaining prescribed massage and electrical treatment within the authorised fees should communicate with the commissioner of medical services of the region, who will make arrangements for the provision of suitable treatment at approved charges.

A1 Recruits and Disablement Claims.

Mr. MIDDLETON asked the Minister of Pensions whether he was aware that the principle of accepting liability for subsequent disabilities of men who passed A1 on enlistment had been admitted by the United States Government; and whether he was prepared to consider the application of the same principle to disabled men in this country.—Major TRYON replied: I am not aware that any such principle has been admitted by the United States Government. If the hon. Member has in mind the recent amendments to the United States War Risks Insurance Act, I am advised that under that Act, as amended, liability for subsequent disabilities in the case of men passed fit on enlistment is confined to cases of disabilities occurring prior to or within one year of discharge from the United States Forces, or to disabilities which are up to a specified date certified as being traceable to injury existing at the time of discharge. The liability referred to is, therefore, strictly limited. In my department it is the practice, in the absence of any record of impairment at the time of enlistment, to regard acceptance for military service as *prima facie* evidence of fitness at that date. This principle holds good in all cases where a claim is made for

any disability within seven years of the man's discharge. I consider, therefore, that the practice of my department in this respect is fully as favourable to the man as that adopted by the United States of America, if, indeed, it is not more favourable, and I am not prepared to make any alteration in it.

French Pensions Law and Attributability.

Mr. LAWSON asked the Minister of Pensions whether his attention had been drawn to Article 5 of the French War Pensions Act of March 31st, 1919; whether he was aware that the Article provided that all diseases from which a soldier or sailor was ascertained to be suffering during the period of his service or during the six months following his discharge should, in the absence of proof to the contrary, be presumed to have been contracted or aggravated as the result of the fatigue, dangers, or accidents of service; and whether, in any amending legislation he might introduce, he would include a clause presuming origin of disability and placing the onus of proving the contrary on the Ministry of Pensions.—Major TRYON replied: I am aware of the Article of the French Pensions Law to which the hon. Member refers, but a reference to the concluding paragraph of that Article shows that its provisions are a good deal more restricted than is suggested by the hon. Member, since, in the case of discharged men, it was limited to those who applied within six months of the publication of the law, that is, before Sept. 30th, 1919, for a certificate of their disease or disability. My department has always acted on the view, in the case of men invalided from the Service, that a disability incurred while in military service affords a *prima facie* suggestion that it was connected with his service, and unless it is clear that the balance of probability is against the man's claim, the benefit of the doubt is given to him. I am not prepared to adopt the hon. Member's suggestion.

Sunderland Pensions Hospital.

Mr. ROBERT RICHARDSON asked the Minister of Pensions whether it was proposed to close the Ministry of Pensions Hospital, Sunderland; whether his attention had been drawn to the fact that the civil hospitals in the counties of Durham and Northumberland had long waiting lists of civilian patients and were unable to deal promptly with pensioners; whether the medical officers of the northern region were in favour of the closing of the Sunderland hospital; and whether, if it be decided to close this hospital, other hospital accommodation would be provided in the county of Durham for pensioners.—Major TRYON replied: Owing to the decreasing requirements of my department in the northern region, arrangements have been made to close this hospital gradually. This step was not taken without the fullest consideration of all the circumstances and, after consultation with my medical advisers, I am satisfied that ample facilities will remain for providing without delay all necessary treatment.

Serious Accidents in Shipbuilding Yards.

Mr. JOHN DAVISON asked the Secretary of State for the Home Department whether, in view of the number of serious accidents, fatal and otherwise, which occur in shipbuilding and ship-repairing yards, he had come to any decision to institute a special inquiry into the means necessary to secure a higher standard of safety.—Mr. BRIDGEMAN replied: Yes, Sir; I have decided to appoint a departmental committee whose terms of reference will be "to inquire into the circumstances and causes of accidents in shipbuilding and ship-repairing and to report what further measures for their prevention are desirable." My hon. friend the Parliamentary Under Secretary of State (Mr. Godfrey Locker-Lampson) has agreed to act as chairman, and the other members of the committee will consist of representatives of the employers and workers affected, and a representative of the Factory Department of the Home Office.

Tuberculosis among School-children.

Mr. CECIL WILSON asked the President of the Board of Education whether his attention had been called to the report of the Sheffield school medical officer in which he stated that tuberculosis was a very frequent cause of ill-health among school-children, and in which he further compared the rate of exclusion per 1000 in the larger elementary schools from which it appeared that in schools where there was poverty the rate of exclusion showed an average in 1922 of nearly 15.0 per 1000, and in schools where there was not poverty the rate was only 2.0 per 1000; and whether these figures applied generally to schools throughout the country.—Mr. EDWARD WOOD replied: I have received the usual official copy of the report in question, and the figures relating to the incidence of tuberculosis among school-children at Sheffield will be reviewed with other similar returns as usual in the annual report of the Chief Medical Officer to the Board. I am advised that the returns for Sheffield are not representative of the country as a whole. The hon. Member will find the subject discussed in the annual report of the Chief Medical Officer for 1920, published in August, 1921, pages 134-145.

Patients in Poor-law Infirmaries.

Mr. HAYDAY asked the Minister of Health what was the average number of patients in Poor-law infirmaries in this country; what was the average number of children boarded out and in children's homes; what was the actual number of Poor-law infirmaries visited by women inspectors last year as distinct from the number of visits paid; whether any Poor-law infirmaries were inspected by male inspectors; what were the qualifications required for the post of superintending woman inspector; and what was her basic salary.—Mr. NEVILLE CHAMBERLAIN replied: I regret that I am unable to state the average numbers asked for in the first two parts of this question, but on Jan. 1st last there were approximately 84,000 patients in infirmaries and in the sick wards of other Poor-law institutions; there were 9800 children boarded out and 32,000 children in Poor-law institutions provided wholly for the reception and maintenance of children. 206 infirmaries were visited by women inspectors last year, and the infirmaries are also inspected by the male general inspectors and by medical officers of my department. The superintending woman inspector is selected from the women inspectors, who are required to be fully trained nurses. Her basic salary is £100—£15—£450.

Kidderminster Hospital.

Mr. WARDLAW-MILNE asked the Minister of Health whether he was aware that, under an arrangement with the Worcester County Council, the committee of the Kidderminster Infirmary and Children's Hospital had hitherto provided treatment for about 85 persons annually suffering from venereal diseases and had further provided in-patient treatment for about 28 persons; whether he was aware that the closure of the in-patient department of the infirmary was now contemplated; if so, whether, seeing that such closure might necessitate the transfer to Worcester of patients who might be dangerously ill, he would state what saving in expenditure the closure of the in-patient department would bring about; and whether, in view of the risk to the patients incurred by the conveyance to Worcester, he would reconsider his decision in the matter.—Mr. NEVILLE CHAMBERLAIN replied: I am aware of the proposals of the Worcestershire County Council in this matter, and I am in communication with the council as to the arrangements which they propose to make for cases needing immediate in-patient treatment. The saving in expenditure due to the proposals is estimated to amount to more than £100 per annum.

MONDAY, APRIL 16TH.

Public Health Commissioner in India.

Sir JOHN HEWETT asked the Under Secretary of State for India whether any decision had been arrived at on the proposal of Lord Inchcape's Committee to abolish the appointment of Public Health Commissioner in India.—Earl WINTERTON replied: The answer is in the negative.

Slum Dwellings in England and Wales.

Mr. TREVELYAN THOMSON asked the Minister of Health what was the approximate number of slum dwellings and of houses not reasonably fit for human habitation at present in occupation in the whole of England and Wales, based on the returns which he had from certain parts of the country.—Mr. NEVILLE CHAMBERLAIN replied: Reports received from the medical officers of health of 1665 local authorities for the year 1921 show that 18,321 houses were reported as unfit for human habitation, and 257,686 houses were found not to be in all respects reasonably fit for habitation. It is not possible to give the number of these houses actually occupied at the time the reports were made.

Daily Death-Roll from Tuberculosis.

Mr. TURNER asked the Minister of Health what was the daily death-roll from tuberculosis.—Mr. NEVILLE CHAMBERLAIN replied: The total number of deaths in England and Wales from all forms of tuberculosis in 1922 was 42,777, or an average of 117 per day.

Licence Duty on Ambulance Cars.

Mr. WESTWOOD asked the Chancellor of the Exchequer if he was aware that licence duty was being demanded for ambulance cars used by education authorities for conveying physically and mentally defective children to and from school; and would he consider favourably that such cars be exempted from licence duty.—Colonel ASHLEY (for the Minister of Transport) replied: Whether or not the vehicles referred to can properly be termed "ambulances" is a matter of law to be decided on the facts of the case. I am not prepared to recommend any extension of the scope of the exemption for ambulance services set out in Section 13 (4) of the Finance Act, 1920.

Increase in Nystagmus.

Mr. ALBERT BENNETT asked the Secretary for Mines if he was aware of the large increase in the number of cases of nystagmus in this country, particularly in recent years;

and what steps he was taking to deal with the matter.—Lieut.-Colonel LANE-FOX replied: As regards the numbers of cases I would refer the hon. Member to the figures given in my reply of March 26th. The whole matter is under inquiry by a committee appointed by the Medical Research Council. A first report was issued last year and another is in course of preparation. The main remedial measure so far suggested is improvement of illumination in mines, and on this very difficult problem the Miners' Lamps Committee has been at work for five years and has published memoranda containing useful suggestions. Everything that the department can do to stimulate improvement in lighting is being done, and I am glad to know that this important subject is more and more engaging the attention of the industry.

TUESDAY, APRIL 17TH.

Duty on Patent Medicines.

Major ENTWISTLE asked the Chancellor of the Exchequer if he was aware that, according to the construction placed by the Customs and Excise Department upon the provisions of Section 3 of the Patent Medicine Stamp Duty Act, 1812, makers of chemical preparations sold under a fancy name, by not claiming proprietary rights, were able to avoid the incidence of the ad valorem patent medicine stamp duty; and whether, in view of the large loss to the revenue resulting therefrom, he would take necessary steps to ensure the payment of the duty in such cases.—Major BOYD-CARPENTER (Financial Secretary to the Treasury) replied: The question whether any particular medicine is liable to medicine stamp duty depends on a number of considerations. If the hon. and gallant Member will furnish me with particulars of the cases he has in mind I will have inquiry made.

Cost of Health Insurance Administration.

Mr. BUTTON asked the Chancellor of the Exchequer if he could supply the relative costs of administration of national health and unemployment insurances per person insured.—Major BOYD-CARPENTER replied: The total cost of administration (central and local) in the two cases are at present—National Health Insurance, 6s. 8d. per insured person; Unemployed Insurance, 7s. 1d. per insured person.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, April 23rd.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Discussion on The Aetiology and Treatment of Osteoarthritis and Rheumatoid Arthritis, to be opened by Sir Archibald Garrod, followed by Dr. F. J. Poynton, Dr. Maurice Cassidy, and Dr. A. F. Hurst.

ODONTOLOGY: at 8 P.M.

Paper:

Dr. C. F. Sonntag: On Some Points in the Comparative Anatomy of the Mouth and Tongue.

Casual Communications:

Mr. G. J. Harborow: A Case of Unerupted Incisors and Canines in a Male, aged 59.

Mr. E. Sprawson: The Vascular Supply of the Enamel Organ of *Felis domestica*.

Tuesday, April 24th.

MEDICINE: at 5.30 P.M.

Short Papers:

Dr. Claude Goulesbrough: Osteo-arthritis of the Spine.
Dr. H. Letheby Tidy: Glandular Fever and Infective Mononucleosis.

Thursday, April 26th.

UROLOGY: at 8.30 P.M.

Clinical and Pathological Evening:

Those desirous of showing specimens are requested to notify the Hon. Secretary, Mr. Girling Ball, 77, Wimpole-street, W., and to state if they require microscopes.

Friday, April 27th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.)
Cases will be shown.

EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.

Paper:

Dr. T. F. Dewar: On the Incidence of Venereal Disease in Scotland.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.

MONDAY, April 23rd.—5 P.M., Prof. Shattock: Syphilis.

FRIDAY.—5 P.M., Sir Arthur Keith: Surgical Anatomy of the Foot.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, April 23rd.—2 P.M., Mr. Addison: Surgical Wards. 3 P.M., Mr. Simmonds: Surgical Out-patients. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Dr. Drummond Robinson: Gynaecological Operations. 2.30 P.M., Dr. Pritchard: Medical Wards. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.

WEDNESDAY.—11 A.M., Mr. Simson: Gynaecological Demonstration. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 3 P.M., Dr. Pernet: Skin Department.

THURSDAY.—2 P.M., Mr. Bishop Harman: Eye Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Department. 2 P.M., Dr. Burrell: Medical Out-patients. 3 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks Davis: Operations on Nose, Throat and Ear. 10.30 A.M., Mr. Maingot: Surgical Pathology.

Daily 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

(Demonstration of Clinical Cases at 3.30 P.M.)
MONDAY, April 23rd.—Gynaecological: Mr. J. Bright Banister.

TUESDAY.—Radiological: Dr. J. Metcalfe.

WEDNESDAY.—Throat and Nose: Mr. C. H. Hayton.

THURSDAY.—Medical: Dr. Yealland.

FRIDAY.—Surgical: Mr. E. Gillespie.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.

THURSDAY, April 26th.—4.30 P.M., Sir Abner Wright: On the Principles of Medical Research.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

THURSDAY, April 26th.—6 P.M., Dr. Eric Pritchard: The General Principles of Feeding and Dietetics as Applied to Infants and Young Children.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).

THURSDAY, April 26th.—3.30 P.M., Mr. H. Chitty: The Treatment of Painful Feet.

FRIDAY (at Dorchester).—Dr. W. Swayne: Toxaemia of Pregnancy.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, April 24th.—4.15 P.M., Mr. J. Morley: The Indications for Operation in Goitre.

ANCOATS HOSPITAL.

THURSDAY, April 26th.—4.30 P.M., Dr. Kletz: The Diagnosis and Medical Treatment of Peptic Ulcer.

Appointments.

ALLAN, J., M.D., B.Ch. Edin., D.P.H., has been appointed Refractionist to the Greenwich and Deptford Treatment Centre (L.C.C.).

BLANDY, MARJORIE A., M.B. Lond., M.R.C.P. Lond., Assistant Physician to the Elizabeth Garrett Anderson Hospital, Euston-road, W.C.

CRICKSHANK, A., M.B., Ch.B. Aberd., Junior Resident Medical Officer at the Highbury Orthopaedic Hospital, Birmingham.

GREGOR, W., M.B., Ch.B. Aberd., House Physician to the Coventry and Warwickshire Hospital.

McFARLAND, B. L., M.B., Ch.B. Liverp., Resident Junior Medical Officer at the Liverpool Open-air Hospital for Children, Leasowe.

SHENNAN, A. H., Assistant County Medical Officer, Lindsey (Lincs.).

THOMSON, W., M.B., Ch.B. St. And., Resident Medical Officer at the Royal Mineral Water Hospital, Bath.

WALKER, J. G., M.R.C.S., L.R.C.P. Lond., Venereal Diseases Medical Officer, South Shields.

Medical Referees under the Workmen's Compensation Act: COLE, T. E. C., M.D. Oxf., for County Court Circuits Nos. 22, 36, and 53; and GREEN, E. C., M.R.C.S., L.R.C.P. Lond., and GOLDSMITH, G. H., M.D. Camb., for County Court Circuit No. 20.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen, Kingseat Mental Hospital, Newmachar.—Asst. M.O. £300.

Birmingham and Midland Homoeopathic Hospital and Dispensary.—Res. H.S. £175.

Birmingham General Dispensary.—Locum for Medical Staff. £9 9s. weekly.

Birmingham, Queen's Hospital Medical School.—H.S. £70.

Brighton, Royal Sussex County Hospital.—H.S. £150.

Bristol General Hospital.—Hon. Asst. P.

Cancer Hospital, Fulham-road, S.W.—H.S. £100.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £125.

Croydon General Hospital.—Jun. H.S. £150.

Dorset Mental Hospital, near Dorchester.—Third Asst. M.O. £350.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.S. £125.

Elizabeth Garrett Anderson Hospital, Euston-road.—Asst. Phys.

Gloucestershire Royal Infirmary.—Hon. Radiologist.

Hôpital Français, 172, Shaftesbury-avenue, W.C.—Second Res. M.O. £100.

Hospital for Sick Children, Great Ormond-street, W.C.—Clin.

Asst. M.O. in Venereal Dept. £1 1s. per visit.

Hull Royal Infirmary.—Hon. P. and Hon. S.

Kensington, Fulham and Chelsea Hospital, Earl's Court, S.W.—Hon. Dental Surg.

Lancashire County Mental Hospital, Winwick, Warrington.—Locum Tenens M.O. £7 7s. weekly.

Liverpool, Royal Southern Hospital.—Hon. Asst. P.

London Homoeopathic Hospital, Great Ormond-street, W.C.—Third Anaesthetist. £50.

Manchester Babies' Hospital, Burnage-lane, Levenshulme.—Res. M.O. £150.

National Hospital for Diseases of the Heart, Westmoreland-street, W.—Out-patient M.O. £125.

Norwich, Norfolk and Norwich Hospital.—H.S. £150.

Nottingham City Asylum.—Jun. A.M.O. £400.

Notts County Council.—Asst. Maternity and Child Welfare M.O. £500.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £125.

Prince of Wales's General Hospital, Tottenham, N.—Jun. H.P. £110.

Redhill, Surrey, Royal Earlswood Institution for Mental Defectives.—Jun. Asst. M.O. £250.

Rotherham Hospital.—Sen. H.S. £250.

Royal Chest Hospital, City-road.—P.

Royal Ear Hospital, Dean-street, Soho.—Hon. H.S.

St. George's Hospital, S.W.—P. Also Asst. P.

Throat Hospital, Golden-square, W.—Hon. Registrars. Also Hon. Asst. S's.

University College Hospital, Gower-street, W.C.—Holiday Surg. Reg. £2 2s. weekly. Asst. Radiologist. £300.

Wakefield, Clayton Hospital.—H.S. £200.

West London Hospital, Hammersmith-road, W.—Hon. Med. Radiologist.

Whittingham County Mental Hospital, nr. Preston, Lancs.—Pathologist and Asst. M.O. £440 17s.

Wolverhampton and Staffordshire General Hospital.—Res. Cas. O. £250.

Worcester County and City Mental Hospital, Powick, near Worcester.—Jun. A.M.O. £300.

Births, Marriages, and Deaths.

BIRTHS.

MACDONALD.—On April 13th, at Walter-road, Swansea, the wife of William Macdonald, M.D., of a daughter.

MARRIAGES.

GILL—JOHNSON.—On April 11th, at St. Stephen's Church, Congleton, A. Wilson Gill, M.D., Chatterley Cottage, Hanley, Staffs, to Edith Mary, elder daughter of the late R. L. Johnson, Butterton Hall, Newcastle, Staffs, and Mrs. Johnson, Henshall Hall, Congleton, Cheshire.

KEANE—MURPHY.—On March 28th, at Malta, Major M. Keane, O.B.E., R.A.M.C., to Lulu Gordon Murphy, Q.A.I.M.N.S.

VERNEY—CONWAY.—On April 10th, at the Holy Innocents' Church, Fallowfield, Ernest Basil Verney, M.B., Ch.B., M.R.C.P., fourth son of Mr. and Mrs. Verney, of Tonbridge, and Ruth Eden Conway, M.B., Ch.B., M.R.C.P., eldest daughter of Professor and Mrs. Conway, Didsbury, Manchester.

DEATHS.

LATHAM.—On April 13th, at a nursing home, Arthur Carlyle Latham, M.D., F.R.C.P., of 11, Portland-place, last surviving son of P. W. Latham, M.D.

MOORE.—On April 9th, at the Shrubbery, Epsom, Stephen Henry Moore, F.R.C.S. Eng., aged 64 years.

St. JOHN.—On April 11th, at "Tregoeze," Eltham, S.E., Alexander Storey St. John, M.R.C.S., L.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

LOWESTOFT AND NORTH SUFFOLK HOSPITAL.—The hon. medical staff of this hospital, in their annual report for 1922, state that 453 patients were admitted during the year, of whom 282 recovered, 114 were relieved, and 12 were not relieved; 52 patients died, of these 10 within 24 hours of admission. There were 65 medical and 388 surgical cases treated during the year, and 248 operations were performed. The total number of attendances in the out-patient department was 4568, besides 570 minor casualties and 6386 daily dressings. There were also 254 minor operations, and 4540 attendances for massage and electrical treatment. The medical staff considered that the efficiency of the hospital was all that could be desired; it was managed by a painstaking subcommittee under an excellent chairman.

Notes, Comments, and Abstracts.

ON WATER-CRESS: ITS VALUE IN THE DIETARY.

WATER-CRESS (*Nasturtium officinale*) belongs to the same natural order (*Crucifera*) as cabbage, brussel sprouts, savoy, sea-kale, cauliflower, broccoli, borecole, turnips, radishes, mustard and cress, and horse-radish, many of which are now esteemed highly for their vitamin content. Raw cabbage leaves contain all three vitamins, and it is probable that water-cress also contains all three. Water-cress has the advantage of being consumed raw, while cabbage has a large percentage of its vitamins destroyed by cooking. So far water-cress has only been actually tested for vitamin C, but as it is a vegetable which can be grown all the year round and sold at a price within reach of all buyers, it would be interesting to learn whether it contains any of the other vitamins.

Water-cress in Ancient Times.

Mr. T. W. Sanders, editor of *Amateur Gardening*, gives us in "Vegetables and their Cultivation" (fourth edition, W. H. and L. Collingridge) some interesting information about water-cress. It has been cultivated from time immemorial. The ancient Greeks esteemed it highly as a food and a medicine. It was supposed to put life into dull and stupid persons. Hence their proverb "Eat cress and learn more wit." Xenophon advised the Persians to feed their children with it to increase their stature, just as MacCollum to-day, with a similar object, advocates more milk for Japanese children. In this respect Xenophon may be regarded as the forerunner of the vitamin school. Pliny recommended water-cress with vinegar as a remedy for deranged minds. The ancient Dutch ate it largely. In our country Gerard, at the end of the sixteenth century, said: "The eating of water-cresses restores the wonted bloom to the cheeks of young ladies," and Lord Bacon said: "Water-cress is an herb that while young is friendly to life." Dr. Arnold Lorand, of Carlsbad, in his book "Health and Longevity Through Rational Diet" (F. A. Davis Company, Philadelphia, 1912) says that water-cress has been used for ulcers of the mouth, from its property of stimulating the saliva. It "stimulates the appetite, and is often served with fine roasts." According to him it is digested most easily when taken in the form of a purée. It was in favour among the ancient Persians as well as the Greeks and Romans, both as a food and a medicine, and the name *Sanité du corps* was given to it by the French. It was first cultivated in Germany at Erfurt, was seen there by Cardon, an officer of Napoleon's army, and by him introduced into France. "In France," says Dr. Lorand, "it is eaten in considerable amounts at almost every meal; in Austria and Germany, on the other hand, it is used comparatively seldom." Dr. Lorand mentions the risk of enteric fever, if the water in which it is grown becomes specifically contaminated. He also says that it contains important substances, such as iodine and iron, and that it has been claimed to have a value in the treatment of many skin diseases, including stubborn cases of eczema, to have a favourable action in constipation, and to stimulate the appetite. In his Bradshaw lecture on "Sub-tropical Esculents" Dr. M. Grabham mentions that in the Atlantic Islands (Madeira, Canary, Cape Verde) water-cress grows in every mountain stream, and is largely used as an ingredient in Spanish and Portuguese soups, a "spinach" of water-cress containing the fungus *Boletus edulis* being in high esteem as a dainty. He says also that water-cress is held in repute locally as a remedy for various disorders.

Its Modern Cultivation.

Water-cress has thus in many lands and at many times had a high reputation as a health-promoting food. Although it is true that we do not spoil it by cooking it in this country, to many people it is simply a garnish or ornament to the dish of game or poultry, and removed by the waiter in the serving dish. There is many a patch of low-lying land in this country, worth merely a nominal rent, where water-cress could be profitably cultivated, if an increased demand arose for it. The possibility of its conveying the infection of enteric fever has been much reduced in recent years, and it would not be a difficult matter to protect water-cress beds. The county authorities responsible for the prevention of the pollution of rivers could add the supervision of water-cress farms to their present responsibilities, and the supply of an easily-grown, cheap, fresh food would probably create a larger demand, to the advantage of the community.

THE LANCET, Dec. 31st, 1921.

GRAUNT'S NOMENCLATURE OF DISEASE.

THAT the domestic therapeutists of the seventeenth century were responsible for some of the names of diseases which still puzzle the curious is indicated clearly by the work on vital statistics, originally written by John Graunt in 1665 and edited in 1676 by his friend, the great William Petty, the political economist. The book in question is "Natural and Political Observations mentioned in a following Index, and made upon the Bills of Mortality." Graunt was a Hampshire man, presumably of Inverness-shire origin, and was one of the earliest members of the Royal Society. Was he the Mr. "Grant" whom Pepys mentions once as a collector of topographical engravings? He was by trade a haberdasher, and held office as Captain of the "Trained Band." His calling, which was also Isaac Walton's, seems to have been commented on when the Royal Society was enduring the same kind of chaff as the British Association for the Advancement of Science underwent in the pages of "Pickwick" 90 years ago. Charles II., however, hoped that if there were more haberdashers like Mr. Graunt they would all be elected Fellows of the Royal Society, while Petty so thoroughly agreed with Graunt's investigations that he practically re-wrote Edition 5 of his book, sometimes speaking of it as his own—which led Evelyn to attribute it to Petty (*Diary*, March 5th, 1675)—and founding upon it that "Political Arithmetic," which became in time our Political Economy. Graunt was therefore an authority in his day, and his opinions on nomenclature deserve respect. But he was puzzled by such odd terms as "the Rising of the Lights" and "Stopping of the Stomach," though incidentally he tells us that "Livergrown" means the "Overgrowing of Children's Livers and Spleens (as by the Bills may appear)," and that "Tissick" is Phthisic phonetically spelt. "Chrisoms," according to Bailey's Dictionary, Edit. 8, 1737, are "Infants that die within the Month of Birth, or while they wear the Chrisom Cloth." Thirty-eight chrisoms died, it will be noted, in the year 1706, but to state that a baby died within a month of birth is not to tell us of what it was ill. And some such consideration leads Graunt into an amusing account of the method of death certification 250 years ago, from which it would appear that in every district a "Searcher" was appointed to look into the causes of death. These searchers were usually ancient women, prototypes of Mrs. Gamp or of those rich mines of Folklore, the old creatures who lay out the dead in country places even to-day. These searchers were perfunctory, nay cursory. "The Old-women Searchers after the mist of a Cup of Ale, and the bribe of a Two-groat fee, in stead of one given them," were wont to put down all emaciated corpses as consumption cases. We can imagine that they only peeped in at infectious cases like plague, and that they relied much on gossip and the theories of relatives. Hence their reports were very mixed, and they were apt to confound accidents with diseases, and the age-incidence of death ("infants," "chrisoms," &c.) with causes. On the other hand, they reflected, in their complete ignorance, popular views as to disease and queer fashions in nomenclature. Thus Graunt notes that "Rickets" began first to appear in the Bills in 1634. "Now the Question is, whether that Disease did first appear about that time; or whether a Disease, which had been long before, did then first receive its Name?" "There seems also," he continues, "to be another new Disease . . . The stopping of the stomach, first mentioned in the year 1636 . . . Forasmuch as the *Rickets*, *Stopping of the Stomach*, and *Rising of the Lights*, have all increased together, and in some kind of correspondent proportions; it seems to me that they depend one upon another, and that what is the *Rickets* in Children, may be the other in more grown Bodies; for surely Children, which recover of the *Rickets*, may retain somewhat to cause what I have imagined; but of this let the Learned Physicians consider, as I presume they have."

The learned have been of late years still considering "the Rising of the Lights" (see THE LANCET, 1913, i., 933, 1003, 1070, 1143). In old lists the full phrase is sometimes "Mother, or Rising of the Lights." "Mother," or uterus, refers to the theory that puerperal convulsions are the result of the lifting or rising up in the interior of the body of the womb. But Graunt is of opinion that the Rising of the Lights is a rising of the lungs. ("Lights" is still the butcher's word for lungs). "For I remembered that some Women, troubled with the Mother-fits, did complain of a *choaking in their Throats*. Now, as I understand, it is more conceivable, that the Lights or Lungs (which I have heard called The Bellows of the Body) not blowing, that is, neither venting out, nor taking in breath, might rather cause such a *Choking*, than that the *Mother* should rise up thither, and do it. For methinks, when a Woman is with Child, there is a greater rising, and yet no such Fits at all." Green-sickness and hysteria were often traced to this imaginary rising of the lights, as also was strangulation.

The stoppage of the stomach is, in the opinion of Graunt, probably due to constriction caused by rickets. The livergrown in infancy—rickety infants—becomes in later life

"stoppage in the stomach." He rejects the popular belief of many that it is due to an uprising of the *mother*. The term was probably used vaguely for a variety of illnesses, including stoppage of the bowel, but Graunt holds to the view that it was a specific disease.

Akin possibly to the above factitious diseases is "strongullion (or strongullion)." Strongullion appears first in the Bills of Mortality in 1701 and disappears completely from them in 1717. Neither Graunt, nor Dr. Johnson, who read Graunt, nor Bailey, nor "Nares's Glossary," nor the "New English Dictionary," nor any known medical dictionary makes mention of this word. It may have some connexion with *Strongylus*, a modern name for a species of tenia. In fact, *strongylus* may be a reminiscence of strongullion. The word *strongyla* occurs in Terentius Pallius for a bust (Greek *στρογγύλη*). The disease strongullion may therefore have been connected with the thorax. It is a learned term, not one due to the popular imagination of the "Searcher," but it remains a mystery.

THE PUBLIC SCHOOLS YEAR-BOOK.

THE 1923 edition of this year-book is the thirty-fourth to be issued. Since 1910 it has been the official book of reference of the Headmasters' Conference, and a prefatory summary of the work of the committee of the Conference is given, together with an abstract of the resolutions adopted at the last annual meeting of the Conference. The first part of the volume contains full details relating to about 140 schools; the second part is devoted to up-to-date information concerning entrance scholarships at public schools, entrance examination to universities, and conditions of admission to the Navy, Army, Air Force, Civil Service, and other professions. The concluding section contains lists of preparatory schools and other matters of general interest. The publishers are Messrs. H. F. W. Deane and Sons, The Year Book Press, 31, Museum-street, London, W.C. 1; the price is 10s. 6d.

THE INSTINCT OF FLIGHT.

IN his concluding paper on the Instinctive Factor in Hysteria in the *R.A.M.C. Journal* for March Major V. T. Carruthers (retired) shows how difficult it may be in the individual case to separate the conscious from the unconscious activities. The springs of action are obscure. They may be due to reflex action, to instinct, to intelligence, or to reason, and it is difficult to demarcate between the spheres of each. The disorder of function we know as hysteria, which is due to disorder of instinctive action, cannot always readily be distinguished from the disorder of reflex action which is disease, or from that misworking of intellect which is malingering. Until recently no instincts but the sexual were supposed to have much influence on human conduct, but that this was a mistake became very clearly apparent during the war, when it was seen that the self-regarding instincts (submission and display) and the instinct of flight were of great importance both as motives of human conduct and as causes of hysteria.

The instinct of flight is awakened when a man is put in fear; it should be overmastered by the intelligence, but physical exhaustion or over-stimulation may lessen the intellectual inhibition, and the behaviour that now results is due to instinct unrestrained. The decision may perhaps not be made by the higher centres at all, but lower down in the brain, the organism doing its best to save itself, as the omentum throws itself, without its owner's wish or knowledge, upon the intestinal damage when it is commencing, to ensure that the threatened harm is so far as possible prevented. These lower-brain decisions were often noted to be eminently prudent. The man who broke down in the front line rarely suffered from paralyses which would have prevented him from moving out of danger; he might develop mutism or anaesthesia. Paralyses of locomotion which would preclude return to the trenches took place well behind the front line. And just so, Major Carruthers might have added, shell shock was very rare in the navy in the war, and only occurred among men who were in action ashore. On board a ship in action shell shock was no help to a weak man; on the contrary, it would prevent him from helping himself if the ship should sink, and his instinct recognised it was safer to go on fighting.

The self-regarding instincts, Major Carruthers went on, are two, the instinct of display or self-assertion or pride, and the instinct of submission or subjection. Very often the patient who has been in some way injured in his self-esteem, and has had his subjection brought home to him, tries to rehabilitate his position by "going sick," and having doctors, nurses, and friends running after him; he is now, he feels, the centre of the picture, and his *amour propre* is for the moment satisfied. Self-abasement is more of an instinct to women. Hysteria of display not due to an antecedent depression is rarely severe, but does occur. Major Carruthers himself noticed that not a few officers

who went sick with functional nervous diseases were to a great extent impervious to shame, so it was not self-abasement followed by self-assertion that had brought on their hysteria, but the imperious instinct of flight, uninhibited by personality or education, and in time it became a blot on a man's record if he had shell shock.

These papers, with their discussion of instinct in insects and other animals, and their exposition of this biological theory of hysteria and its links with those of Babinski, Janet, and Freud will repay study as a whole.

NEO-MALTHUSIAN CONFERENCE REPORT.

THE report of the Fifth International Neo-Malthusian and Birth Control Conference, held at the Kingsway Hall, London, from July 11th to 14th, 1922, has been published in book form by Mr. Heinemann. The meeting of the contraceptive section, open to members of the medical profession, was fully reported in THE LANCET of July 22nd, 1922. Readers who are interested in birth control, from whatever standpoint, may be glad to find set out in one volume not only reports from foreign countries but a collection of addresses on various aspects of the subject by those who have given them close study.

THE YEAR-BOOK OF SCIENTIFIC AND LEARNED SOCIETIES.

WE have received from Messrs. Charles Griffin and Co. the thirty-ninth annual issue of the Year-book of the Scientific and Learned Societies of Great Britain and Ireland. This is a record, compiled from official sources, of the work done during the session 1921-22 by numerous societies and government institutions in the regions of science, literature, and art. It is divided up into 14 sections dealing respectively with (1) science generally; (2) astronomy, mathematics, and physics; (3) chemistry and photography; (4) geography, biology, and mineralogy; (5) biology including microscopy and anthropology; (6) economic science and statistics; (7) mechanical science and architecture; (8) naval and military science; (9) agriculture and horticulture; (10) law; (11) literature, history, and music; (12) psychology; (13) archaeology; (14) medicine. In each case the information given includes the names of executive officers, times of holding meetings, the conditions of membership, and a list of papers read during the past session. Reference to the index shows how large is the number of societies included, and we gather from the preface that the few which have been discontinued are more than counterbalanced in number by the new societies dealt with. The section of medicine is comprehensive, although naturally not exhaustive, and the chief value of the year-book will doubtless be found by those who desire information outside the range of their own particular professional connexion. The year-book is one of that type of publication which becomes more valuable from year to year, and the present issue is conspicuous for its high degree of accuracy and comprehensiveness.

SUPERANNUATION AND LIFE ASSURANCE IN INDUSTRY.

THE information department of the Industrial Welfare Society has drawn up a number of instructive and suggestive notes¹ as to the formation of pension funds for superannuated workers, by the combined contributions of employers and employed. Life assurance and "group assurance" are also touched upon in the memorandum. Many such schemes as are dealt with exist already, for we have travelled far since the early days of last century, when the worker was exploited and his health sacrificed for the benefit of the capitalist who paid him a starvation wage and left him to his fate when his working life was over. Superannuation schemes are no doubt a heavy charge upon industry and indirectly upon the consumer of its products. The high contributions necessary are explained as due to better conditions of employment, sanitary and otherwise, which have caused a longevity in industrial workers, previously unknown, and in view of which provision for longer enjoyment of pensions must be made. The importance of the movement will be realised if we reflect upon the part played by food and living conditions in the upbringing and maintaining of a healthy race, and upon the desirability of preventing the lapse of the worker into squalid poverty when his vigour has declined. His condition, whether of poverty or of comparative security, affects not only himself but any young persons dependent upon him, and freedom from anxiety as to his future must have its influence upon his health and capacity for work during his service. The memorandum of the Industrial Welfare Society should prove a valuable guide to those who are seeking to amend and improve existing organisations.

¹Memorandum on Superannuation and Life Assurance Schemes, Prepared by the Industrial Welfare Society, 51, Palace-street, Westminster, S.W. 1.

Three Lectures

ON THE

CULTIVATION OF TISSUES AND TUMOURS IN VITRO.

Delivered at University College, London.

BY A. H. DREW, D.Sc.,
IMPERIAL CANCER RESEARCH FUND.
(With Illustrative Plates.)

LECTURE II.*

(Delivered on March 7th, 1923.)

In the last lecture I dealt with the preparation of the various reagents necessary for successful tissue culture. It is now necessary that we should consider some of the characters of normal tissues growing outside the body. Just as in bacteriology an immense increase in knowledge was gained when a satisfactory technique was devised for preparing pure cultures, so in a detailed study of tissues and tumours it is highly desirable to be able to deal with pure cultures of cells. Three chief methods may be used in dealing with this problem, which may be considered under the following headings: mechanical separation, separation by ultra-violet light, and separation by encouraging the growth of one type of cell at the expense of others.

MECHANICAL SEPARATION.

This process is due to Carrel, and consists of growing a culture in a plasma medium and selecting portions of the growth which appear to be free from mixture with other cells when examined with the microscope; these portions are then carefully excised with iridectomy knives and are transplanted to fresh medium. With care and experience this method yields good results with plasma cultures, but is not very successful with cultures made in the saline medium.

SEPARATION BY ULTRA-VIOLET LIGHT.

This is probably the best means of separation for cultures in the saline medium, as after a few failures pure cultures can be readily obtained. A series of cultures of the selected tissue, say, kidney, are put up and examined daily till vigorous growth takes place. In one or more of any series of cultures pure kidney cells will be found growing free from connective tissue elements in certain portions of the growth. A minute globule of mercury is then carefully pushed on to the preparation and so arranged as to cover the selected cells. Provided the globule is not too large it will be found to remain in position fairly well. The slide is then removed from the microscope and placed under a mercury-vapour lamp, care being taken that it does not become heated. After an exposure of from five to ten minutes it is removed, fresh culture medium added, and the slide returned to the incubator. On examination it will be found that the cells unshielded by the mercury have been killed and growth is taking place from the small fragment of culture shielded and is pure in character. With care the same technique may be applied to plasma cultures, but here it frequently fails. It is best to grow the primary cultures intended for this separation on quartz cover-glasses.

SEPARATION BY SELECTION.

If cultures of heart be incubated at a rather high temperature, 40° C. for a few hours, the heart cells gradually die off, and a pure culture of connective tissue is obtained; the same holds for certain tumours and other tissues. As a rule this procedure cannot be recommended, as it often fails to effect a separation. Its chief merit is the ease with which it is done and the saving of time secured. Pure cultures, having been obtained, merely require

frequent subculture to maintain growth indefinitely. As a matter of routine, subculture should be carried out every three days, as then the cells are kept in a state of maximum activity. Although when dealing with normal tissues frequent subculture is advantageous, yet it is not necessary to the same extent as is found to be the case when growing tumours. Cultures of actively pulsating heart have been left for as long a period as 13 days before subculture, and beating has continued throughout the whole period. Cultures may also be obtained from tissues removed aseptically and stored in the cold; for example, we have obtained good active growths of kidney after 18 days storage in the ice-chest. Examination of young actively growing cultures shows that growth is normal in all respects; the mitotic figures are quite normal and the chromosomes can frequently be counted. The mitochondria are unaltered unless the tissue is beginning to require subculture, when they may be found to be forming fat. Cultures of mamma from a pregnant animal will continue to form fat droplets which will render the culture fluid very milky. Such a phenomenon does not occur with ordinary mamma cultures.

Epithelium grown in pure culture occurs as a sheet of undifferentiated tissue. A pure culture of myoblasts growing as a sheet may show active pulsation. Figs. 1, 2, 3, and 4 illustrate pure cultures of heart, kidney, skin, and mammary gland respectively. Although cultures when pure grow as undifferentiated sheets, differentiation may be induced by the addition of cultures of connective tissue. Fig. 5 shows a pure culture of kidney epithelium. If to such a pure culture a portion of connective tissue is added, differentiation sets in, usually within 48 hours, and rudimentary tubule formation takes place. This is well shown in Fig. 6, which illustrates a portion of the culture from Fig. 5 subsequently grown with connective tissue. When we come to consider tumour growth, exactly the same thing will be found to occur. The correct dosage of connective tissue to produce this result is largely a matter of chance. If too much be added the connective tissue outgrows the kidney and ultimately replaces it; if, on the other hand, too little be added, the kidney may fail to react and ultimately overgrows the connective tissue. The same type of phenomenon is seen in skin cultures, which when pure tend to grow as a sheet of somewhat spindle-shaped cells, but in the presence of connective tissue show signs of commencing keratinisation. Fig. 7 illustrates the type of growth so obtained. When working with the saline medium and adult tissues, the best method of obtaining satisfactory cultures, is to use rather larger pieces of tissue than is customary with embryos, and to subculture—i.e., to renew the culture fluid daily, whether growth takes place or not. If a sufficiently large number of cultures be put up and treated in this manner a proportion of them will be found to show slight traces of growth in from 8 to 14 days. Once initial growth has been obtained it may be easily maintained by repeated subculture. It must be clearly borne in mind, however, that for the continued culture of cells the medium, whether plasmatic or saline, must contain fresh embryo extract. As Carrel has pointed out, cultures without such extracts fail.

ADULT AND EMBRYONIC GROWTHS.

Adult and embryonic tissues growing in the saline medium exhibit a striking difference. While growth is practically immediate in embryonic tissues, adult tissues always show a very long lag; this point is brought out by the accompanying chart:—

Growth of Embryonic Tissue in Ordinary Saline Medium
+ Embryo Extract.

++ +++ ++++ +++++ 4 days.

Growth of Adult Tissue in Ordinary Saline Medium + Embryo Extract.

0 0 0 0 0 0 0 0 0 0 0 0 + + + 13 days.

The reason for this curious lag shown by all adult tissues will shortly become apparent. From a

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* Lecture I. appeared in THE LANCET of April 21st.

consideration of the phenomena of repair, it seemed likely that substances given off by damaged cells would act as a stimulus to cell proliferation, and these experiments appear to indicate the truth of this surmise. If tissues such as kidney, spleen, or liver be finely minced, mixed with an equal volume of the saline medium, incubated at 30° C. for two or three hours, and then centrifuged, the supernatant fluid is found to contain a substance, or substances, capable of accelerating the growth of adult tissues very greatly. As has already been stated, adult tissues when grown in a saline medium exhibit a very long period of lag during which no growth takes place whatever. If, however, an adult tissue be put up in culture in the saline medium containing some of the extract above described, it is found that vigorous growth will take place within a period of from 24-48 hours. Growth of this nature having once been obtained, if subcultured into a similar medium—that is, into a medium still containing an autolysed extract—instead of continuance of the growth, early degeneration with ultimate death of the whole culture takes place. If, however, after the initial period of growth such a culture be subcultured into the ordinary medium without an autolysed tissue extract, growth is maintained steadily without degeneration setting in, and may be kept going for an indefinite period, just as with cultures of embryonic tissues. Such growth obtained in this manner appears to be perfectly normal. The mitoses observed differ in no way from those observed in ordinary actively-growing cultures of either embryonic or adult tissue made in the usual manner. We have here an explanation of the period of lag observed in cultures of adult tissues. During the lag period many of the cells would appear to die out, and only when the concentration of the products of autolysis becomes sufficient to initiate cell proliferation do we find growth commencing. Whatever the nature of this substance is, it does not appear to be of the same nature as embryonic extract, as although it has been found that embryonic extracts suffer greatly in their efficiency when exposed to heat at 60° C. for 15 minutes, this amount of heat has been found totally inadequate to affect in any way the potency of such autolysed extracts of adult tissues. If extracts of adult tissues are made, the tissues being kept ice-cold, the saline medium also being cooled, and the mixture centrifuged at once without being allowed to undergo autolysis, such an extract is found to be inert and to cause no stimulation of growth in cultures. It is, therefore, clear that whatever these substances may be, they are only evolved during the process of autolysis, and therefore take some time to appear in the medium. This fact should be borne in mind, as when we come to consider tumour growth in our next lecture it will assume a very important aspect.¹

LECTURE III.

(Delivered on March 17th, 1923.)

WE have in this last lecture to consider some of the points regarding tumour growth outside the body, and to contrast it with the growth of both adult and embryonic tissues. The earlier workers on the subject found that tumours were more difficult

¹ Points dealing with the differentiation of tissues and growth with autolysed extract (Lecture II.) and the whole of Lecture III. have been much abridged, as they are being fully dealt with in a forthcoming paper in the *British Journal of Experimental Pathology*.

to grow and maintain in subculture than were embryonic tissues, and this is still found to be the case, the tumours generally occupying an intermediate position between the embryonic and adult tissues. The great difficulty in tumour culture is to maintain growth in successive subculture and to prevent the tumour becoming overgrown by connective tissue. As an example of the kind of difficulty one meets with, we may take a rapidly-growing sarcoma, No. 37 S of these laboratories. If such a tumour be cultured into a plasma-embryo extract, medium growth occurs in 24 hours, the plasma is liquefied, and one obtains a ring-shaped growth shown in Figs. 8 and 9. Small portions of the growth may break away from the main fragment, and these also grow as typical ring cultures; these are well seen in Fig. 9 representing a single culture in which two small fragments have broken away from the main portion and are seen growing as separate rings. If such a plasma culture be examined daily, it will be found that degeneration is setting in on the second day, and in a few days the culture dies out. I have shown that this is due to substances liberated from the tumour cells, and that the degeneration may be overcome by daily subculture into fresh medium. When this is done growth takes place as a sheet of spindle-shaped cells which may be kept growing indefinitely. Fig. 10 represents a portion of a pure culture of No. 37 sarcoma. Such cultures inoculated into mice reproduce the same type of tumour as that from which they were originally grown. Fig. 11 illustrates some of the figures obtained from tumour cultures.

PURE CULTURES.

It is just as necessary to obtain pure cultures of tumour cells as it is to obtain normal cells in a like condition, and the same technique is adopted. Many tumours, and notably the carcinomata, show a tendency to grow out at first as finger-shaped processes of pure tumour cells; these can easily be either cut off or covered with mercury and exposed to ultraviolet light in the manner already described. Fig. 12 shows a mouse carcinoma growing in this manner. When such a tumour is obtained in pure culture, growth takes place as an undifferentiated sheet of tissue similar to that shown in Fig. 13.

Just as we have seen that differentiation may take place in pure cultures of embryonic cells when growing with connective tissue, so the same thing is found to occur with tumours. For example, we see that in Fig. 6 a pure culture of mouse carcinoma grows as a sheet of undifferentiated tissue. If to such a pure culture connective tissue be added, growth occurs in the form of acini, and the whole culture strongly resembles normal mouse mamma. Fig. 14 illustrates this type of differentiated growth. Figs. 15 and 16 show the same thing. To a culture of heart containing connective tissue a fragment of a pure culture of a carcinoma was added. It will be seen how the carcinoma cells invade the heart tissue, and as they come into contact with the connective tissue, acini are beginning to be formed. Fig. 16 illustrates a portion of the growth under a higher power. The delicate balance between connective tissue cells and tumour cells is soon lost with continuous growth, and ultimately one type of cell overgrows the other; usually the connective tissue grows more rapidly, and ultimately it is again obtained in pure culture.

We have already seen that autolysed tissue extracts had a remarkable effect on adult tissue growth; such

DESCRIPTIONS OF FIGS. 1 TO 7 (LECTURE II.).

(See Illustrative Plate.)

FIG. 1.—Pure culture of embryo rat heart. Forty-eight hours' growth in saline medium plus embryo extract. The sheet showed active pulsation when placed in the fixative.

FIG. 2.—Pure culture of adult rat kidney. Three days' growth in saline medium from a fourth subculture.

FIG. 3.—Pure culture mouse embryo skin. Five days' culture in saline medium.

FIG. 4.—Pure culture of adult rat mamma. Four days' old culture in saline medium.

FIG. 5.—Pure culture of mouse kidney in saline medium. Note growth as undifferentiated sheet.

FIG. 6.—Pure culture of mouse kidney taken from Fig. 5 and cultured with pure culture of connective tissue. Four days' growth in saline medium. Note tubule formation.

FIG. 7.—Skin cultures growing with connective tissue. Note keratinisation.

DR. A. H. DREW: CULTIVATION OF TISSUES AND TUMOURS IN VITRO.
(LECTURE II.)

FIG. 1.



FIG. 2.

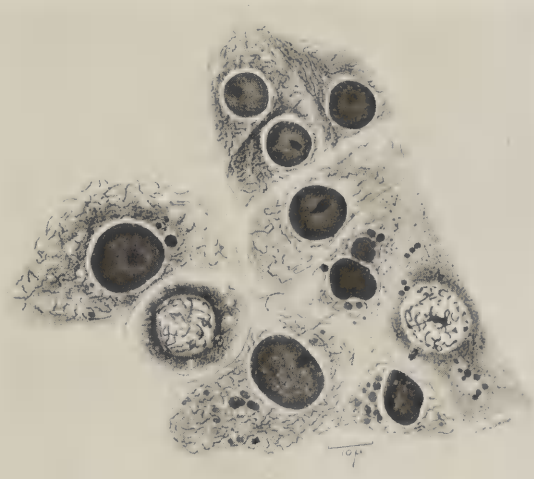


FIG. 3.

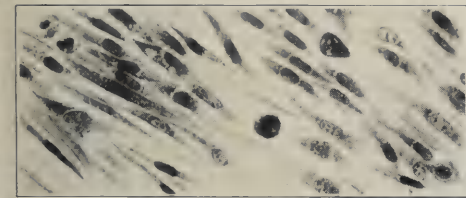


FIG. 4.

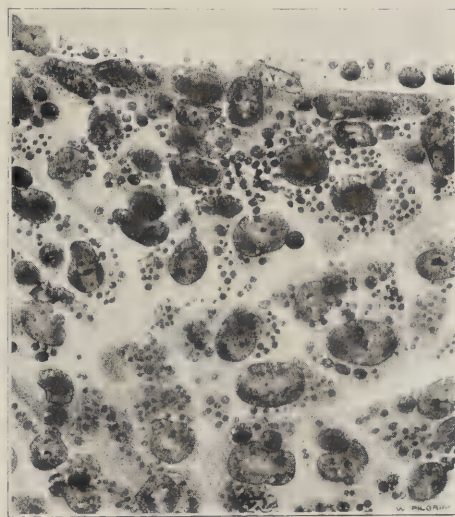


FIG. 5.

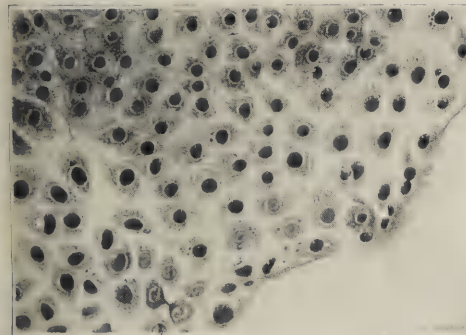


FIG. 6.

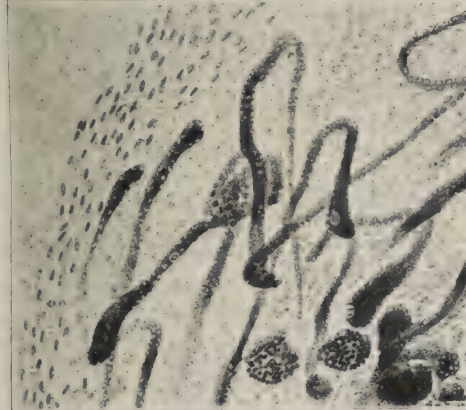
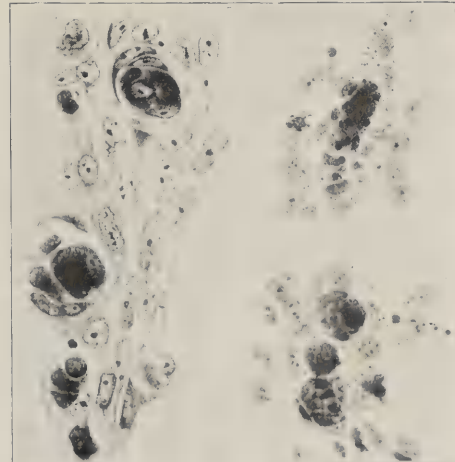


FIG. 7.



Descriptions to Illustrations are on opposite page.

DR. A. H. DREW: CULTIVATION OF TISSUES AND TUMOURS IN VITRO.
(LECTURE III.)

FIG. 8.

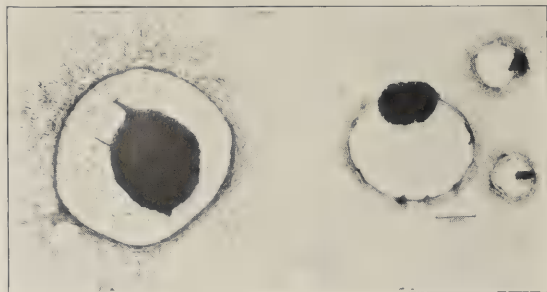


FIG. 9.

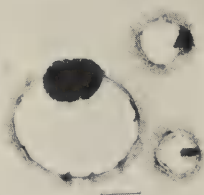


FIG. 10.

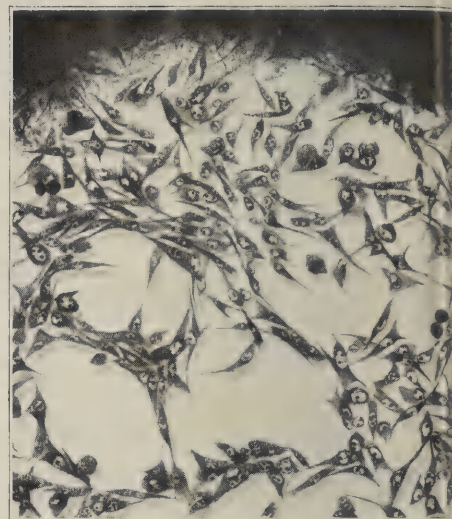


FIG. 11.

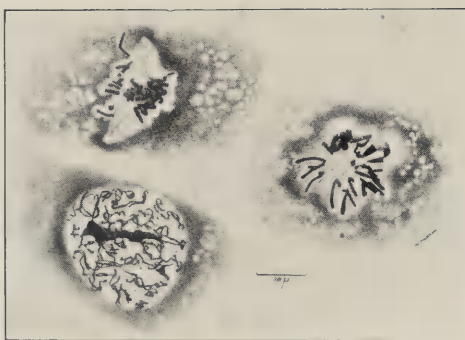


FIG. 12.



FIG. 13.

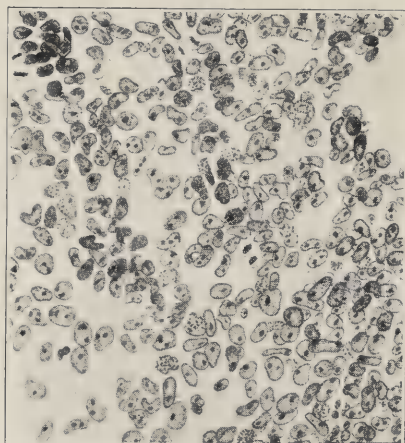


FIG. 14.



FIG. 15.

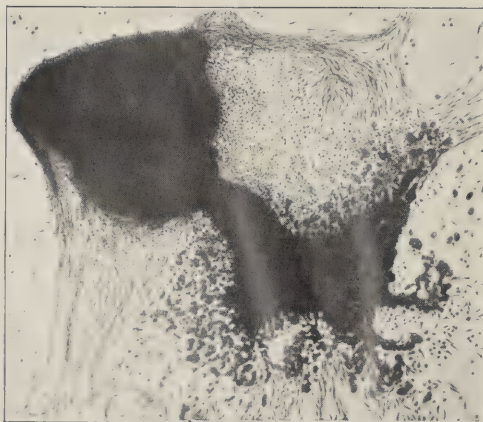
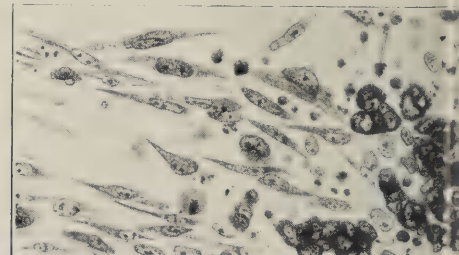


FIG. 16.



Descriptions to Illustrations are on opposite page.

an effect is well shown by the accompanying chart, which illustrates the growth of adult tissues in ordinary saline media and in media with an autolysed extract added.

Growth of Adult Tissues in Ordinary Saline Medium.

1 2 3 4 5 6 7 8 9 10 11 12 13 14* days.

Growth of Adult Tissues in Saline Medium Plus an Autolysed Tissue Extract.

1 2* days.

The black figures indicate renewal of culture fluid and the asterisks commencement of growth.

Tumour cells in such a medium are adversely affected. A rapidly-growing tumour shows very early degeneration, while slower-growing tumours appear to be stimulated to faster growth, but here again early degeneration sets in very rapidly. It can be shown that tumours spontaneously liberate some substance or substances similar to those formed during tissue damage, for a fresh extract prepared from tumours in the cold contains a very potent growth-stimulating substance for adult tissues. Fig. 17 shows an 11-day growth of adult rat kidney in an ordinary saline medium plus embryonic extract. It will be seen that only a minimal trace of



FIG. 17.—Eleven-day old culture of adult rat kidney in saline medium plus embryo extract. Note comparative absence of growth.

FIG. 18.—Forty-hour culture of portion of adult kidney shown in Fig. 17 grown in saline medium plus embryo extract with the addition of a tumour extract. Note large amount of growth and compare with Fig. 17.

it must be borne in mind that the culture here is only 48 hours old, compared to the 11 days' growth of the other. The growth obtained by the aid of such extracts is frequently of an explosive character—that is to say, growth may occur all around the original fragment, and portions becoming detached grow about on the slide in all directions; such a type of growth being illustrated in Fig. 19.

FIG. 19.



FIG. 19.—Portion of adult kidney culture in saline medium plus embryo and tumour extract. Note explosive character of growth portions becoming detached and growing over the slide in different directions.

FIG. 20.

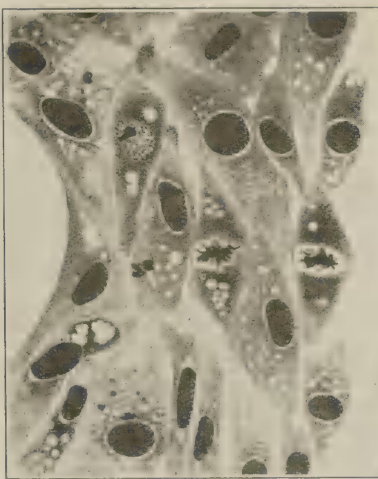


FIG. 20.—High power view of portion of growth shown in Fig. 19. Note active mitosis of a perfectly normal type.

growth has taken place. Fig. 18 shows a portion of the same kidney incubated in the same medium, but with a fresh extract of a rapidly growing tumour added. It will be seen that enormous growth has occurred, and

by means of such extracts appear to be quite similar to the ordinary rapidly-growing cultures, the mitoses being quite normal. Fig. 20 illustrates one of these growths as seen with a high power.

DESCRIPTIONS OF FIGS. 8 TO 16 (LECTURE III.).

(See Illustrative Plate.)

FIG. 8.—Twenty-four hour culture of No. 37 sarcoma in rat plasma plus embryo extract (low power). Note liquefaction of medium and ring-shaped growth at periphery.

FIG. 9.—Eighteen-hour culture of sarcoma in rat plasma only (low power). Note how small fragments have broken away from the large original fragment each growing and forming ring-shaped growths.

FIG. 10.—Pure culture in saline medium plus embryo extract of No. 37 sarcoma (medium power). Note growth as mass of spindle-shaped cells.

FIG. 11.—Mitotic figures from tumour cultures in saline medium.

FIG. 12.—Young culture of mammary carcinoma growing in saline medium, plus embryo extract. Note growth in finger-shaped processes which may be utilised for obtaining pure cultures.

FIG. 13.—Pure culture of mammary carcinoma growing in saline medium. Note growth is as an undifferentiated sheet of tissue.

FIG. 14.—Pure culture of mammary carcinoma 206 grown in saline medium plus embryo extract with culture of connective tissue. Note that the tumour cells no longer grow as undifferentiated sheet but from acini. The whole growth strongly resembling normal mouse mammary gland.

FIG. 15.—Culture of carcinoma 206 grown with heart culture containing connective tissue. Note how tumour invades the heart tissue and on coming into contact with the connective tissue elements forms acini (low power).

FIG. 16.—High power view of small portion of culture shown in Fig. 15.

THE HÆMORRHAGES OF THE NEW-BORN.*

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(Working on behalf of the Medical Research Council.)

THE varieties of hæmorrhage which are found in the new-born form a subject which is of some importance in the study of the factors which lead to death of the foetus before and during birth and of the infant in the first few days of life. In the first place two perfectly distinct forms of hæmorrhage are to be differentiated.

1. The so-called "hæmorrhagic diathesis of the new-born"—a convenient if somewhat inaccurate term which includes several varieties of hæmorrhage of known and unknown origin.

2. The important group of true birth hæmorrhages—with which, chiefly, the paper deals.

The subject of hæmorrhage in the new-born is one to which a good deal of attention has been drawn recently, but it is by no means a new one. Scattered through the medical literature of the past 30 years and more one finds references to it. There is often evidence of complete confusion between the various forms of bleeding met with, and their relative frequency and importance have seldom been sufficiently emphasised. It may, therefore, be of interest to present the subject briefly, and to refer to some of the results of the work which is being carried out in the Research Department of the Glasgow Royal Maternity and Women's Hospital on behalf of the Medical Research Council.

1. The Hæmorrhagic Diathesis of the New-born.

All the varieties of hæmorrhage which are included for convenience in this group are of rare occurrence. Only a few cases have come under my observation, and I therefore deal with this aspect of the subject briefly. On the one hand they are to be distinguished from the true birth hæmorrhages, and on the other from hæmophilia. All three types of hæmorrhage are quite distinct in ætiology. In 1891 Townsend read a communication before the Boston Medical Society in which the term "hæmorrhagic disease of the new-born" was applied to a condition in which small or large effusions of blood occur in various parts of the body—apparently spontaneously. He pointed out the transitory nature of the illness, and in discussing its ætiology was inclined to favour an infective origin. He was probably the first observer to make a clear differentiation between such spontaneous hæmorrhages and the asphyxial and traumatic hæmorrhages of birth. The commonest manifestations of these spontaneous hæmorrhages, which are grouped together under the name "the hæmorrhagic diathesis," are bleeding from the gastro-intestinal tract, bleeding into the skin, bleeding from the umbilical cord, and late bleeding into the suprarenals and other viscera. If space permitted one might also mention some of the less common forms of the diathesis, such as the curious epidemic form of hæmoglobinuria described by Bigelow and others. There is, undoubtedly, a group of hæmorrhagic conditions which are definitely associated with sepsis in one form or another. From the accounts in the older literature it would appear that at one time this type of bleeding was very much more frequent than it is nowadays. This is not surprising in view of the comparative infrequency of sepsis generally with the employment of modern aseptic methods. There is also a group of cases in which hæmorrhage appears to be dependent on the presence of syphilis. An interesting account of this condition was published in 1904 by Hless of Chicago. There are still other cases in which no cause can be

found. Possibly a certain number of these are really atypical cases of true birth hæmorrhage.

2. The Hæmorrhages of Birth.

Entirely separate from the various forms of spontaneous hæmorrhage, which have been mentioned under the general term hæmorrhagic diathesis, there is a large group of hæmorrhages which are associated with the congestion and asphyxia of birth. It is these hæmorrhages which form the main theme of the present communication. They are of surprisingly frequent occurrence, and the question of their prevention forms a difficult problem which, till recently, has not been given the consideration which it merits. The extent and variety of these hæmorrhages, though seldom sufficiently emphasised, is really no new discovery. A very complete demonstration of the commoner lesions was given by Herbert Spencer in a communication published in 1892, and it is interesting to compare his findings with the almost identical results of more recent observations. That the incidence of these forms of hæmorrhage should have remained almost unchanged suggests that the improvements in obstetrical technique which have been introduced in the past 30 years or so can have had little effect on the factors which are responsible for the production of these lesions. Without attempting to explain completely the ætiology of the hæmorrhages of birth one may perhaps try to demonstrate in a general way the mechanism by which they are produced.

(a) Prenatal, Intranatal, and Neonatal Asphyxia.

The foetus in utero is in a state of apnoea. How exactly respiration is established is still largely a matter of conjecture, but the following theoretical explanation is pretty generally accepted. Though somewhat incomplete, it seems on the whole reasonable. In the course of normal delivery the O_2 and CO_2 tension are so balanced in the foetal blood that there is sufficient oxygen to meet the needs of the tissues between the time of cessation of the placental respiratory exchange and the establishment of pulmonary respiration, while at the same time the tension of CO_2 remains sufficiently low to prevent stimulation of the respiratory centre till the child is born. It is probable, though actual proof is still lacking, that the tension of CO_2 required to stimulate the respiratory centre during foetal life is very much higher than that reached at any time under normal conditions when there is no interference with the placental circulation. Feldman, in speaking of this aspect of the physiology of the neonatal period, accepts as most probable the theory elaborated by Schwartz, according to whom the foetal respiratory centre becomes more and more irritable in the later months of pregnancy as a result of the increased vascosity of the blood which reaches the medulla owing to the gradual narrowing of the ductus arteriosus. A condition of partial asphyxia is thus produced, and during labour it is increased by the interruption of the placental respiratory exchange. The foetus thus passes from a state of apnoea to one of dyspnoea, and the respiratory centre is stimulated not only by the increased CO_2 tension of the blood, but also by reflex stimuli from the skin so that pulmonary respiration becomes established. If these theoretical explanations are correct, the child at birth is in a state of partial asphyxia which deepens until the respiratory centre is sufficiently excited by the increased CO_2 tension and by cutaneous stimuli. We do not know what relation the variations in oxygen tension may have to the establishment of pulmonary respiration in the foetus at birth, but in view of the most recent work on the physiology of the respiration it seems unlikely that this factor can be ignored.

It may be accepted that a certain degree of asphyxia is normally present before and during birth. Obviously any circumstance which leads to an undue lengthening of the interval between the cutting off of the placental respiration and the establishment of the pulmonary respiration must increase this degree of asphyxia to a point beyond the physiological limit. Whether the interruption of placental exchange of gases be caused by premature separation of the placenta or by delay

* A paper read before the Southern Medical Society, Glasgow.

in the birth of the child and in the establishment of independent respiration, the result is the same. From birth onwards the normal respiratory centre responds to increased CO_2 tension in the blood in such a way that the respirations become deeper and more frequent, and the partial pressure of alveolar CO_2 is prevented from increasing beyond the normal limit. Such a mechanism is, of course, impossible in the fœtus in utero or during parturition.

With regard to the production of neonatal asphyxia, there are two main factors which suggest themselves. The first is the observation that while a moderate increase of CO_2 will stimulate the respiratory centre, an excess will ultimately paralyse it. The second factor is that the respiratory centre may have its activity diminished by interference with its blood-supply. In a series of experiments, quoted in Luciani's text-book of physiology, Kusmaul and Tenner showed that a gradual arrest of the cerebral circulation will so exhaust the respiratory centre that marked dyspnoea appears. When the cerebral circulation is restored, however, there results a period of apnoea which they explain on the grounds that the normal CO_2 tension of the blood is not sufficient to stimulate the exhausted respiratory centre. It is suggested that the first of these factors may be involved in the failure to initiate respiration in many asphyxiated infants, while the second factor may be responsible for those cases in which there has been interference with the fœtal circulation during birth from pressure. In the production of prenatal and intranatal asphyxia another factor is occlusion of the umbilical vessels either from twisting of the cord round fetal parts or from prolapse of the cord during labour. Here, again, either or both of the above-mentioned mechanisms may be in action.

The pressure of the contracting uterine walls is, undoubtedly, an important element in deepening asphyxia and increasing congestion, and it is probably responsible for the production of many of the hæmorrhages to which reference will be made presently. That severe asphyxia may develop in utero from interference with the placental respiratory exchange before labour has commenced at all can be demonstrated in cases of maternal death from accidental hæmorrhage in which no labour pains have occurred. As the degree of asphyxia deepens the circulation becomes more and more embarrassed and congestion appears throughout the body. The heart continues to act and the congestion becomes more marked. If no relief is obtained, the congestion becomes so great that certain of the smaller vessels give way and petechiæ and capillary oozings appear in various situations. There may even be gross hæmorrhage into the viscera. All these effects may be produced by the asphyxial congestion alone, quite apart from the additional trauma of labour. This is shown in the cases of concealed accidental hæmorrhage just mentioned. When, however, there are added to this extreme congestion the force of strong uterine contractions and the pressure of the passages to which the child must be moulded, the risk of gross hæmorrhage is enormously increased. It is not surprising to find, then, that in a very large number of cases such hæmorrhages do exist.

(b) Traumatic Hæmorrhages (Intranatal).

In addition to the hæmorrhages which arise as described from extreme congestion alone, there are various types of bleeding which are produced by trauma superimposed on asphyxial congestion. To this class belong most of the grosser forms of intracranial and visceral hæmorrhage. Such trauma may be due either to pressure of the maternal parts or to obstetrical interference. The importance of asphyxial congestion as a predisposing cause of these hæmorrhages was pointed out by Ashby in 1890. Spencer, on the other hand, was inclined to lay more stress on trauma as the main factor in their ætiology. From our findings at the Maternity Hospital one has the impression that the presence of asphyxial congestion is the essential element in the production of hæmorrhage,

that the increase of this congestion by the pressure of the maternal passages is the next most important element, while injuries due to abnormalities of presentation or to operative interference occupy the third, though still one of the important places in the ætiology of these lesions.

It is in the production of severe intracranial hæmorrhage and the grosser forms of visceral hæmorrhage that intranatal injury shows its greatest effect. The work of Holland, and later that of F. J. Browne, has drawn attention to the frequency of injuries to the dural septa—particularly the tentorium cerebelli. Such dural tears are in many cases the cause of gross fatal intracranial hæmorrhage. While this incidence has not been so great in the cases examined by Prof. A. M. Kennedy and myself in Glasgow as in those examined in London and Edinburgh, their frequency is still sufficient to make them rank among the important lesions associated with birth. To the same category belong many of the cases of gross hæmorrhage into internal organs and rupture of the capsule of the liver with intraperitoneal bleeding.

Results.

Having thus briefly outlined the mechanism by which the hæmorrhages of birth are produced, one may now consider the results of these processes—the actual lesions found in the new-born. These results are based upon an investigation of 200 mature infants and 200 premature infants, which was carried out by Prof. Kennedy and the present writer.

Hæmorrhages (see Table I.).

Mature Infants.—In the series of 200 mature infants hæmorrhage of greater or less degree was present in 154 cases—a percentage incidence of 77. If allowance be made for certain craniotomy cases, the incidence rate of hæmorrhage in this group of 200 mature infants becomes approximately 80 per cent.

TABLE I.—Incidence of the Various Grades of Hæmorrhage in 200 Mature and 200 Premature Infants.

Lesion.	Mature.	Premature.
	Per cent.	Per cent.
Hæmorrhage—all grades	80	66.5
Capillary oozings or petechiæ only	30	26.5
Gross hæmorrhage	50	40
Gross intracranial hæmorrhage	32	22.5
Gross intracranial hæmorrhage and visceral hæmorrhage	10	12.5
Visceral hæmorrhage without intracranial hæmorrhage	13	13
Intracranial hæmorrhage alone	22	15
No hæmorrhage	20	33.5
Tentorial tears	30	12

In 55 instances, however, the hæmorrhage consisted of capillary oozings or petechiæ only, and if these be neglected, there was gross hæmorrhage in 99 cases—approximately 50 per cent. of the series. There were 65 cases—about a third of the series—which showed meningeal hæmorrhage of a gross character. In 44 of these cases meningeal hæmorrhage was the only gross hæmorrhage present—though capillary oozings or petechiæ were noted in most instances—while in the remaining 21 cases the meningeal hæmorrhage was associated with gross hæmorrhage into the viscera. In 34 cases—approximately one-sixth of the whole series—there was hæmorrhage into the viscera without meningeal hæmorrhage. This group contained eight cases of craniotomy, however, so that it would be more correctly estimated at 26—an eighth of the series.

Premature Infants.—Two hundred premature infants which were born during the eighth or ninth lunar months of pregnancy were examined, and it was found that in 133 cases hæmorrhage was present. This is an incidence of 66.5 per cent. over the whole series of 200 cases, and the correction necessary to allow for the inclusion of craniotomy cases is here negligible. In 52 of the premature infants the bleeding did not amount to more than capillary oozings or petechiæ, so that there was gross hæmor-

rhage in 81 cases—approximately 40 per cent. of the whole. Meningeal hæmorrhage, apart from other gross bleeding, was found in 30 cases, and in 25 cases there was meningeal hæmorrhage associated with hæmorrhage into the viscera (approximately one-fifth and one-eighth of the series respectively). In another eighth of the cases—26 to be exact—there was gross visceral hæmorrhage without meningeal hæmorrhage. The inclusion of two cases of craniotomy in this group makes little difference to the figures.

Comment.

In comparing the incidence of hæmorrhage in the group of mature cases with that in the group of premature cases the most striking difference is that, while only 20 per cent. of the mature infants were free from hæmorrhage, practically 35 per cent. of the premature infants had escaped. The percentage incidence of most of the types of hæmorrhage is lower in the premature group than in the mature group by a fairly constant amount; but the incidence of meningeal hæmorrhage was the same in both.

Tentorial Injuries (see Table I.).

The incidence of tentorial tears was practically the same in the two groups—9.5 per cent. of the mature infants and 10.5 per cent. of the premature infants showing complete or incomplete rupture of this structure. These figures are low compared with the findings of other workers, but they may be explained in part at least by the presence of a large number of cases of craniotomy in the series. Thus, in the group of 200 mature infants there were 20.5 per cent. of craniotomies, while in the premature group there were 2.5 per cent. of craniotomies. Most of these were "failed forceps," and presumably the majority would have shown tentorial injuries had the head not been destroyed at operation. It seems permissible to add the greater number of these craniotomy cases to the group showing tentorial tears. If this be done, the incidence of tentorial tears becomes approximately 30 per cent. in the mature group and 12 per cent. in the premature group. This is equivalent to 24 per cent. of the total 400 mature and premature cases.

With regard to the factors leading to the occurrence of these ruptures of the tentorium, it is to be noted that in 79 per cent. of the mature infants showing such injuries the labour was abnormally long, and in 9 per cent. it was precipitate. Among the premature infants no cases of precipitate labour were associated with tentorial injuries, but 90 per cent. of the cases of tentorial tearing in the group had been delivered after a protracted labour. Contracted pelvis was present in the mothers of seven (about one-third) of the mature infants, and in two (about one-tenth) of the premature infants showing tentorial tears. Antepartum hæmorrhage had occurred in four (about one-fifth) of the mature cases and in 11 (about one-half) of the premature cases. Version had been performed in three (about one-seventh) of the mature cases and in eight (about two-fifths) of the premature cases. In six (about one-third) of the mature cases and in four (about one-fifth) of the premature cases there had been a forceps delivery. With regard to the presentation, it was found that in 47 per cent. of the mature cases and in 52 per cent. of the premature cases the child was delivered by the breech. This high proportion of breech cases demonstrates the risks of tentorial injuries which are associated with the comparatively rapid delivery of the aftercoming head. Only one transverse presentation occurred in each group.

The effect of such injuries in causing intranatal death is demonstrated by the fact that 84 per cent. of the mature infants and 66 per cent. of the premature infants showing tentorial tears were still-born, while of those which survived birth only one lived more than a day or so.

Comment on the Two Series of Cases.

From the examination of these two series of cases it is evident that the two main types of lesion can be distinguished. The commonest, hæmorrhage, occurs

in about 70 per cent. of all the cases, and is distinctly more common in the mature foetus (80 per cent.) than in the premature foetus (66.5 per cent.). The other type of lesion, intracranial injury, occurs much less frequently, being found in not more than 20 per cent. of cases. Like the hæmorrhages, this type of lesion shows a greater incidence in the mature than in the premature foetus.

Hæmorrhages.—With regard to the ætiology of hæmorrhage, the factor of greatest importance appears to be the passive congestion which is produced by prenatal and intranatal asphyxia. Postnatal asphyxia plays a part in a small number of cases only. The degree of congestion depends, chiefly, on the length of time which elapses between the interruption of the interchange of gases in the placenta and the establishment of pulmonary respiration. Sometimes the birth occurs so rapidly that the child is in a state of apnoea, while in other cases the delay is such that the child is asphyxiated to a greater or less degree. It may be born before the asphyxia proves fatal, or it may die from the effects of asphyxia before delivery. That visceral or other hæmorrhages may occur from asphyxia alone is confirmed by the finding of such lesions in several foetuses which were delivered at post mortem. In these cases the mother had died from the effects of concealed accidental hæmorrhage before any uterine contractions had taken place. The placenta was separated from the uterine wall by the hæmorrhage, gaseous interchange had thus been interrupted, and the foetus had died from asphyxia with all the usual evidence of extreme congestion and petechial hæmorrhages.

That these asphyxial hæmorrhages may be supplemented or increased in amount by pressure of the parturient canal during labour is obvious. Hæmorrhages due to such pressure really fall into the category of birth injuries, however.

From the finding of hæmorrhages in infants which had died during the first few days of life from bronchopneumonia or some other condition it is clear that at least the lesser degrees of birth hæmorrhage are not necessarily fatal. What effect, if any, they produce on the subsequent health and development of the child is a question beyond the scope of the present study.

Tentorial Injuries.—The factors leading to the production of tentorial lesions are more complex than those which give rise to birth hæmorrhages. The alterations in the diameters of the head, which occur during its passage through the parturient canal, form the basis of their ætiology. The size of the head in relation to that of the pelvis, the degree of ossification in the cranial bones, the length of the labour, and, above all, the presentation and the performance of operative measures, are all concerned in the causation of tentorial injury. In the present series it will be noted that a large proportion of the infants showing tentorial tears were delivered by the breech. This fact tends to confirm the prevalent opinion that the aftercoming head is particularly prone to suffer lesions of the dural structure during its comparatively rapid delivery. The influence of operative measures—particularly of version—is shown by the number of premature infants with tentorial tears whose delivery had been so complicated.

Incidence of Still-birth in Mature and Premature Infants (see Table II.).

In the series of 200 mature infants 90 per cent. were still-born in the group which showed capillary oozings and petechiæ only, 77 per cent. were still-born in the group showing meningeal hæmorrhage alone, 76 per cent. were still-born in the group showing meningeal hæmorrhage associated with visceral hæmorrhage, 59 per cent. were still-born in the group showing visceral hæmorrhage without meningeal hæmorrhage, and 54 per cent. were still-born in the group in which no hæmorrhages were found.

In the series of 200 premature infants (eighth and ninth lunar months) 65 per cent. were still-born in the group showing capillary oozings and petechiæ only

TABLE II.—Incidence of Still-birth in Relation to the Various Grades of Haemorrhage in 200 Mature and 200 Premature Infants.

Lesion.	Mature.	Premature.
	Per cent.	Per cent.
Capillary oozing or petechiae	90	65
Intracranial haemorrhage alone .. .	77	56
Intracranial and visceral haemorrhage ..	76	56
Visceral haemorrhage alone .. .	59	76
No haemorrhage .. .	54	43
Tentorial tears .. .	84	66

56 per cent. were still-born in the group showing meningeal haemorrhage alone, 56 per cent. were still-born in the group showing meningeal haemorrhage associated with visceral haemorrhage, 76 per cent. were still-born in the group showing visceral haemorrhage without meningeal haemorrhage, and 43 per cent. were still-born in the group in which no haemorrhages were found.

Comment.

The incidence of still-birth in the various groups of mature and premature infants shows several interesting features. In the first place there is the difference of 25 per cent. in the rate for cases showing capillary oozings and petechiae only. The next is the very similar variation—20 per cent.—in the rate for cases showing meningeal haemorrhage alone. The third, and perhaps the most striking point, is the 20 per cent. excess of still-births in the premature infants with meningeal and visceral haemorrhages over the still-births in the corresponding group of mature infants. It may be noted in this connexion that while in 22 mature infants with meningeal and visceral haemorrhages there were five cases of antepartum haemorrhage (23 per cent.), there were 14 cases of antepartum haemorrhage (56 per cent.) in the group of 25 premature infants which showed meningeal and visceral haemorrhages.

From the examination of such figures as the above it is evident that many infants with quite extensive birth haemorrhages are born alive and survive. In a number of the cases investigated death had occurred from some quite independent condition such as broncho-pneumonia or nephritis, and it is probable that, but for the intervention of such a disease, the child might have survived beyond the period of infancy with which one is particularly concerned.

References.

- Townsend, C. W.: Boston Med. and Surg. Jour., 1891, cxxxv., 218; Arch. of Pediat., 1904, xi., 559.
 Bigelow, H. J.: Boston Med. and Surg. Jour., 1875, 277.
 Hess, J. H.: Arch. Pediat., 1904, xxi., 593.
 Wilson, W. R.: Arch. of Pediat., 1905, xxii., 43.
 Welch, J. E.: Amer. Jour. Med. Sci., 1910, cxxxix., 800.
 Abt, L. A.: Jour. Amer. Med. Assn., 1903, xl., 204.
 Spencer, H. R.: Trans. Obst. Soc. Lond., 1892, xxxiii.
 Feldman, W. M.: Princ. of Antenatal and Neonatal Phys., London, 1920, 441, 274.
 Luciani, L.: Human Physiology, London, 1911, i., 479.
 Ashby, H.: Brit. Med. Jour., 1890, i., 281.
 Golding-Bird, C. H.: Guy's Hosp. Rep., 1890, xlvii., 253.
 Thomson, J.: Syst. of Med., Albutt and Rolleston, v., 869.
 Griffith, J. P. C.: Dis. of Childn., 1919, i., 263.
 von Reuss, A. R.: Dis. of the New-born, 1921, 171 and 207.
 Browne, F. J.: Edin. Med. Jour., 1921, xxvii., 153 et seq.
 Holland, Eardley: Ministry of Health Reports, No. 7, 1922.
 Pearce, R. G.: Jour. Lab. and Clin. Med., 1917, ii., 867.

ROYAL EASTBOURNE EYE HOSPITAL.—This institution was established in 1913 and was first known as the Eye Infirmary, but in 1921 it changed its name to Eye Hospital and is now known as the Royal Eastbourne Eye Hospital. The annual report submitted to the subscribers on April 10th showed that the new patients numbered 993, an increase of 145 on 1921. The purchase of the freehold of the hospital premises was completed during the year; the property was free from debt, and the building and the equipment had been valued at £3200 odd. The cost of maintenance had increased from £590 to £768, but despite this, last year's deficit had been liquidated and £70 was carried forward.

TUBERCULOSIS OF THE SACRO-ILIAC JOINT.*

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AT a recent clinical meeting I had the honour of exhibiting a patient upon whom I had performed a resection of the sacro-iliac joint for tuberculosis. I propose now to give the results of a survey of the literature of the subject, and the records of nine cases, for eight of which I am indebted to Prof. Thelwall Thomas, who also kindly assisted me in obtaining some of the literature; the remaining case is my own.

It is just over a century since the tuberculous nature of some cases of sacro-iliac disease was first recognised. Between 1821 and 1879 numerous papers were published, but the majority of surgeons considered operation inadvisable. It was not until 1889, when Mayo Collier's paper appeared, that the question of operation was reconsidered and began to find favour. Collier's paper was closely followed by others from Makins and Golding-Bird, all three surgeons giving accounts of cases treated by trephining and scraping with fair results. These three papers form the basis of the treatment given in most surgical text-books at the present day. That this treatment is inadequate I shall endeavour to show by what follows. As in other surgical problems, an accurate knowledge of anatomy and pathology paves the way for an appreciation of the significance of the symptoms and signs, and is essential to correct diagnosis and logical treatment.

Working on these lines, Bardenheuer, in 1899, described a method of resection of the joint by means of a Gigli saw introduced within the pelvis and cutting from within outwards. Bardenheuer's method errs on the side of severity, since it is by no means always necessary to perform such a radical operation, and it is not easy to adapt it to the varying conditions which may be present. The latter provision is fulfilled by the method described by Picqué in 1909, the principle of which is the removal of the portion of the ilium overlapping the joint, and the methodical following up of the disease, as far as may be necessary, from without inwards. After careful study, Picqué's method appeared to me to be based on sound principles, and I adopted it for my patient. I shall give the details of technique later, but first it is desirable to consider briefly the chief facts in the anatomy and pathology of the joint. Only thus are we prepared to understand the reasons for the failures in the past and the hope of success by more radical treatment in the future.

Anatomy.

The sacro-iliac joint can no longer be regarded as a synchondrosis and is now generally admitted to be an arthrodial or gliding type of diarthrosis. The auricular-shaped surfaces on the ilium and sacrum are covered by two plates of cartilage, of which the sacral is considerably thicker than the iliac. Between the two plates is a narrow cleft, provided with a synovial membrane; the size of this cleft varies at different ages, and it may be partially or completely obliterated by fibrous bands passing between the cartilaginous plates. It is the occurrence of this latter condition which has caused the joint to be described as a synchondrosis. The exact position and extent of the iliac auricular facet should be carefully noted (Fig. 1). It occupies, roughly, the lower third of the posterior or sacral part of the inner surface of the ilium below the tuberosity. Anteriorly it curves upwards as far as the middle of this surface, and posteriorly it extends to the posterior border of the ilium on the inner surface of the postero-inferior spine. The bone at the anterior part of the facet is

* A paper read before the Liverpool Medical Institution.

fully one inch thick. The auricular facet on the sacrum, according to Fawcett, is ossified from costal epiphyses which appear about the eighteenth year, and after fusing together, unite with the diaphysis at the twenty-fifth year. The iliac facet is formed by the diaphysis. The pathological significance of this will appear later. Owing to the wedge shape of the sacrum, the ilium overlaps it very considerably posteriorly and makes the joint difficult of access.

The ligaments may be divided into two groups, capsular and accessory. The capsular ligaments are conventionally described as the superior, inferior, anterior, and posterior sacro-iliac, together with an interosseous ligament, which is intimately connected with the posterior sacro-iliac. These ligaments are blended together around the joint to form the capsule, but they are chiefly concentrated at the posterior aspect, where they occupy the deep crevasse between the bones. They effectually shut in the joint posteriorly and prevent the spread of pus backwards. The accessory ligaments are the great and small sacro-sciatic, the sacro-lumbar, and the ilio-lumbar, to which may be added the lumbar aponeurosis, the tendon of the erector spinæ, and the fascia lata. Surgically their importance lies in their wide attachment to the lumbar vertebræ, sacrum, and ilium, thus preventing excessive movement at the joint and providing a stout pelvic brace after extensive resection of bone.

The movements permitted are only small in extent, but they are increased when laxity of the ligaments has occurred in pregnancy. They consist in a gliding up and down, and forwards and backwards, together with a slight rotation on a transverse axis, which permits a rocking movement of the sacrum, the promontory passing forwards, the apex backwards, and vice versa. The fact that movement is permitted at the joint renders it more liable to sprain, the so-called relaxation. Apart from movement, the joint is subject to the varying pressure and strain of the weight of the trunk as it is transmitted, via the joint, to the innominate bones and lower limbs. Whereas the function of most joints is active, to permit extensive movement of one part of the body in relation to another part the function of this joint is entirely passive, and is concerned in the absorption of shocks and the easing of strains.

We should expect, therefore, to find what is actually the case, that no muscles act directly on the joint. Indirectly it is affected by the contraction of the muscles of the abdomen, pelvis, back, and thighs. In disease of the joint the action of these muscles causes pain, and conversely they are liable to spasm in an endeavour to fix the joint.

The nerve-supply is important, since the localisation of pain in disease of the joint is very variable, and is to be accounted for by the wide distribution of the nerves which supply the joint, or are in close relation to it. It is supplied by the superior gluteal, and twigs from the anterior and posterior primary divisions of the first and second sacral nerves. The lumbo-sacral cord and the obturator nerve are related to it anteriorly. The nerve roots concerned include the second to the fifth lumbar and the first two sacral—practically all the roots concerned in the formation of the lumbo-sacral plexus. The intimate relations are, above, the psoas and iliacus; below, the pyriformis, superior gluteal nerve, and gluteal vessels; posteriorly, the dense ligaments and the erector spinæ; anteriorly, the internal iliac vessels, the lumbo-sacral cord, and the obturator nerve; externally, the ilium covered by the glutei; internally, the upper sacral foramina and the sacral nerve roots. These structures are largely concerned in determining the position of an abscess and its spread in various directions.

Pathology.

With regard to the pathology, the disease is rare compared with tuberculosis of the spine or hip, and particularly so in children. The age-incidence of the cases I have studied falls between 20 and 30, and there were four males and five females.

The primary focus is invariably in the bone, either sacrum or ilium, the former being the more common. According to some, primary infection of the ilium does not occur, and this is the more likely since, as pointed out above, there is no secondary centre for the iliac facet. A primary synovial infection has never been recorded. Tuberculous caries ensues, the bone becoming softened and eroded; extension to the joint follows sooner or later, and the other bone is then attacked. Necrosis frequently occurs, and sequestra are common. More or less sclerosis may be present in the immediately surrounding bone. Continuation of the carious process results in the breaking down of the tissues to form an abscess, which gradually increases in size and follows the line of least resistance. This is determined by the anatomical relations of the joint already considered. Intrapelvic abscess is commoner therefore than extrapelvic, and the pus may follow the psoas sheath downwards into the thigh or upwards into the iliac fossa or lumbar region; or it may pass into the thigh, via the lumbo-sacral cord and great sciatic nerve or obturator nerve and vessels. The superior gluteal nerve and gluteal vessels conduct the pus to the buttocks; and in other cases it has passed between the obturator and anal fascia to the ischio-rectal fossa, and has even entered the rectum, bladder, or vagina. Extrapelvic abscesses point directly in the buttock, but often possess several loculi amongst the glutei.

Eventually, in neglected cases, the abscess bursts on the surface; secondary infection follows and the patient's life is made miserable by the presence of a sinus discharging pus. These sinuses may be very tortuous and of great length; moreover, the walls vary greatly in consistence according to whether they pass through soft tissues or bones and ligaments. Drainage through them is poor; they therefore tend to be multiple, and their presence materially increases the difficulties of treatment. A fatal termination follows upon the diffusion of the abscesses and general infection.

Symptoms and Signs.

The history of onset is variable; there is often a history of injury or sprain. In one case an influenzal attack immediately preceded the joint symptoms; in other cases either a swelling or limp may be the first sign, and pain may be absent; more frequently the initial symptom is pain, usually associated with weakness of the limb and more or less limp on walking. The character and site of the pain are very variable; it may be a localised aching or a radiating stabbing pain, felt in hip or knee, lower part of the back, buttock, or back, or inner side of the thigh, according to the nerve-twigs affected. It is usually worse at night, and is increased by any movement of the joint or neighbouring structures—e.g., sitting, standing, walking, or jarring the heel; coughing, sneezing, defæcation, or micturition; compression or separation of the iliac spines, hyperflexion, or hyperextension of the trunk or thigh. In conjunction with the pain the patient limps, only short steps being taken with the affected limb, and the weight being kept as far as possible on the sound side. As a further consequence of this a slight scoliosis may be present. In some cases, owing to relaxation of the ligaments, the patient complains of a peculiar feeling of weakness, as if the pelvis were falling to pieces, especially on defæcation or other abdominal strain. Tenderness on direct pressure over the joint is a valuable sign; this is best elicited by pressure over the postero-inferior iliac spine, where, as already noted, the joint closely approaches the surface.

Reflex muscle spasm follows in due course in an endeavour to fix the joint. The immediate effects of this may be to cause further pain owing to irritation of the sciatic nerve by the ischial head of the biceps; or deformity, such as flexion of the hip or lordosis, from spasm of the psoas. The latter condition may also be due to direct irritation of the muscle. Later this spasm leads to atrophy of the muscles, most obvious in the flattening of the buttock and loss of the

gluteal fold. In about three and a half months from the onset, on an average, a fluctuating swelling appears in one or other area, as outlined in discussing the pathology. It may or may not be tender on palpation and there may be an impulse on coughing.

Diagnosis.

The difficulties of diagnosis are to be accounted for in several ways, and at the outset I may say that there is no sign pathognomonic of this disease. Compression of the ilia is frequently painless when extensive disease is present; on the other hand, it gives rise to pain in primary disease of the acetabulum. The prominence given to this sign is therefore unjustified. Mistakes in diagnosis appear to be due in the first place to inefficient examination. It cannot be too strongly emphasised that in the examination of a patient complaining of persistent pain in the back, or sciatica, the practitioner is not giving himself a fair chance unless the patient is stripped so as to expose the whole of the back and legs. It is only by a careful routine examination of the spine, pelvis, and lower limbs, together with rectal and vaginal examinations, that mistakes in diagnosis are to be avoided. Moreover, the protean character of the symptoms and signs confuses the mind, and secondary effects are apt to be taken for primary lesions. Lastly, the undoubted rarity of the disease, and the inconspicuous nature of the functions of the joint, lead to the condition being entirely forgotten, especially as more common diseases are so frequently simulated.

In the early stage, before abscess formation, the most reliable sign is the presence of tenderness on direct pressure over the joint. Patients frequently complain of pain over the joint in sciatic neuritis or other conditions, but as a rule true tenderness is absent. In discussing the pathology, it has been seen that the infection is primarily in the bone, and one would expect that a radiogram would show some change in the shadow. This must depend on destructive bone changes, which probably take one or two months to develop. X ray examination, therefore, is a valuable confirmatory test, and should be repeated after an interval in a suspected case. The other symptoms and signs are commonly present in other diseases, and appear more likely to mislead than to aid in diagnosis. In the later stage after the formation of an abscess, the presence of a fluctuating swelling, together with the tenderness over the joint, and the X ray appearances, renders the diagnosis a simpler matter. The abscess may point, however, at a considerable distance from the joint.

The question of differential diagnosis is so extensive that it is impossible to discuss it adequately in the time at my disposal. I can only briefly allude, as follows, to some of the more important conditions which may give rise to difficulty.

First, other diseases of the joint. It must be remembered that it is subject to the same lesions which occur in other joints. Of these the acute infections (pyogenic or gonorrhœal), osteo-arthritis, and sprain are the most important. The chief distinguishing characters are the acute onset, pyrexia, and more rapid course of the infective conditions, the likelihood of other joints being affected, the history, and the X ray appearances. Clinically it is impossible to distinguish between early tuberculosis and sacro-iliac sprain or relaxation, but the latter speedily recovers with rest and strapping of the pelvis; the radiogram is negative.

Secondly, affections of the neighbouring bones and joints, such as tuberculosis of the hip or spine, scoliosis, chronic sprain of the back, sarcoma of ilium or sacrum, and malformation of the fifth lumbar transverse process, may be excluded by careful examination and the radiographic appearances. For instance, in hip disease limitation of movement is quite definite in all directions; in sacro-iliac disease gentle examination shows that movement at the hip-joint is painless in one or other direction. The same remark applies to the spine. A radiogram will show growths of the

bones or periostitis of the fifth lumbar transverse process in cases where it impinges on the crest of the ilium.

Thirdly, affections of nerves; true sciatic neuritis is distinguished by the tenderness of the nerve trunk and the absence of tenderness over the joint. This requires careful demonstration, since the chief tenderness of the nerve is sometimes at the lower part of the great sacro-sciatic foramen, a site fairly close to the lower part of the joint. Muscular atrophy may be present in either condition, but anæsthesia points to neuritis. The nerve may be involved in sacro-iliac disease, in which case tenderness is present over the joint and nerve, and the other joint signs are also present. Tumours of the cauda equina give rise to pain, and later anæsthesia, in the distribution of the posterior roots, and atrophy of muscles supplied by anterior roots. At first unilateral, this closely simulates sacro-iliac disease, but the atrophy of muscles occurs earlier, tenderness is not localised to the joint, and the anæsthesia is against it. Moreover, lumbar puncture may show presence of albumin and fibrinogen in the cerebro-spinal fluid.

Lastly, other affections, such as growths in the pelvis, ovarian or uterine disease, or appendicitis may give rise to pain about the joint, but should be excluded by the routine examination. I must confess that I am somewhat sceptical as to the difficulty of diagnosis in some of these conditions, but Rugh mentions two cases of appendicitis simulating sacro-iliac disease, in one of which a competent surgeon curetted the joint!

Prognosis.

The prognosis in the past was invariably bad, and, judging from the records, it is not greatly improved by limited methods of trephining and scraping. This is only to be expected from the anatomical and pathological evidence already considered. On the other hand, this forms the clearest indication for more radical methods, and the records of cases thus treated are very encouraging. It is very difficult, however, to arrive at a clear conclusion as to the value of a method of treatment in a small series of cases. The rarity of the disease precludes the possibility of impressive statistics, and we must form the best judgment we can from the evidence available.

Of Mr. Thelwall Thomas's eight cases, between 1905 and 1916, an abscess was present in all except one. Two cases were not operated upon; one of these had no abscess and was cured by rest, the other was a boy of 15 whose abscess burst spontaneously. Of the six cases operated upon, five were incised and scraped; three of these were discharged with sinuses present, in the other two the condition on discharge is not stated. In the sixth case the joint was excised and the patient was discharged cured. I have only been able to trace three of these cases. One is the boy, whose sinus is now healed, the other two were cases which were incised and scraped, and discharged with sinuses present; one of these died two months later, the other is now in Fazakerley Hospital, confined to bed with five sinuses. We may take it that, in Mr. Thomas's hands, these results are as good as anyone would have obtained by the less radical methods. For our present purpose it is significant that a cure followed in the only case where excision was performed.

Turning to the results of the more radical methods. Picqué records five cures in seven cases. My patient, aged 31, had a large extrapelvic abscess and a sequestrum was present; the operation was performed in September, 1921. At the present time he shows no sign of local recurrence, has gained over a stone in weight, is able to walk without a limp, and follows his previous occupation.

Treatment.

Coming now to the question of treatment, enough has been said to show that the old method of trephining and scraping is not sufficiently radical, since it does not permit of complete removal of all the diseased bone, and gives at best a very poor and imperfect

approach to the more common intrapelvic abscess. I very much question the permanent value, in cases where an abscess is present, of the bone-graft operations described by some American surgeons, with a view to fixing the joint, and shall not discuss them here. Nor can I here discuss the ethics of conservative treatment, beyond saying that I should give it a trial in children.

Picqué's Method.

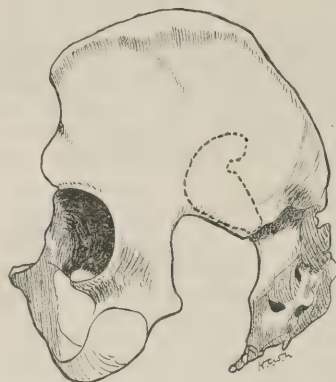
I shall now pass to the details of Picqué's method, which is based on the following principles: (1) an approach to the joint by cutting away the posterior overlapping portion of the ilium; (2) the resection of more or less of the sacrum, as may be necessary, to the complete evacuation of any intrapelvic abscess; (3) the methodical following up of the disease by means of the gouge or curette, so that a smooth granulating surface may be formed without pockets or sinuses.

Technique.—This is as follows. The incision is curved (Fig. 2), passing along the posterior third of

cut away depends on the extent of the disease, and varies from a simple curetting, or a superficial chipping by the gouge, to an extensive resection of the lateral portion of the sacrum.

This method of approach permits of bone being cut away precisely from the neighbourhood of the nerve roots with little danger of injury. On the other hand, if the curette is relied upon with insufficient exposure, nerve injury is only too probable. Moreover, an intrapelvic abscess can be completely evacuated and explored, due regard being paid to the important structures in relation to the anterior surface of the joint. The bony walls of the cavity are now made as smooth and regular as possible, avoiding depressions and pockets which favour retention of discharges. The whole area is swabbed with bipp, and the wound packed with gauze soaked in iodoform emulsion; the ends of these packs are brought out at the middle of the incision and the remainder sutured. During the next 48 hours fresh dressings are applied, as required, over the original one, which is not disturbed.

FIG. 1.



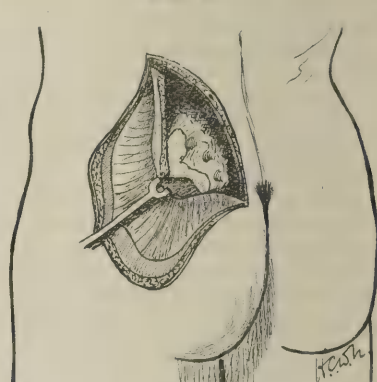
Auricular facet superimposed upon outer surface of ilium.

FIG. 2.



Reflection of flap and line of section of ilium.

FIG. 3.



Portion of ilium resected; sacral surface of joint exposed.

the iliac crest and downwards on to the lateral edge of the sacrum. The knife cuts down to the bone at once and the whole flap is raised from the dorsum ilii, by a periosteum elevator, until the upper border of the great sciatic notch is exposed, with the superior gluteal nerve and gluteal vessels coming out of the pelvis below it. The structures attached to the iliac crest are also freed by the elevator. As the flap is turned down any superficial abscess is dealt with by the curette. In using this instrument my ideal is to remove the tuberculous granulation tissue without penetrating any fibrous wall that may have formed beneath it. If time is to be saved, it should not be at the expense of this part of the operation, for I am sure that it is most important to get away all tuberculous material if possible. An inspection of the bone and ligaments usually reveals the track by which the pus has travelled backwards. Picqué figures a partial and a complete section of the ilium, the former limited to the upper half or two-thirds of the posterior part of the ilium, the latter including the whole of the posterior part, from the iliac crest to the great sciatic notch. A reference to Fig. 1, in which the auricular facet is superimposed upon the outer surface of the bone, shows that the partial operation leaves the greater part of the joint behind, and for that reason I think the section should always pass into the notch (Fig. 2).

The bone is gradually cut through by chisel or osteotome, commencing at the iliac crest about 3 inches from the postero-superior spine, downwards to the junction of the upper and anterior borders of the notch. Finally the portion to be excised is levered up and removed by cutting the ligamentous fibres attached to it. The sacral surface of the joint is now exposed (Fig. 3), and any sequestrum present may be removed. The amount of bone now requiring to be

The packs are then removed under gas anaesthesia and the suturing of the wound completed. After this extensive operation a considerable amount of oozing occurs which is checked by the packs, when they are removed firm pressure over wool prevents further hæmorrhage.

The patient is kept in bed with the pelvis firmly bandaged for four or five weeks, at the end of which time a pelvic belt is fitted and he is allowed up on crutches. The crutches may be discarded in a favourable case at the end of the twelfth week, but a pelvic belt should be worn until the patient feels that he can get along without it. One might expect much interference with the statics of the pelvis as a result of this resection of bone, but clinical experience shows that this is not the case, even where partial resection of the sacrum has been performed. A large mass of callus is thrown out by the bone and periosteum and the whole area is welded into a fibro-osseous mass, which is sufficiently firm to bear weight although a certain amount of torsion of the pelvis may be present.

Notes of Author's Case.

The following are the notes of my case:—

Male, aged 31. In August, 1920, he suffered from "sciatica" in the left thigh and lay in bed with severe pain for six weeks. When he got up the leg felt weak and powerless, and he supported himself on two sticks when walking. By August, 1921, a swelling the size of an egg had developed in left buttock; no pain until that month, when he felt a sharp pain shoot through the swelling, which was also getting larger. There had been a definite loss of weight.

Condition on Admission.—He was admitted to Bootle Borough Hospital on Sept. 5th, 1921. Painless fluctuating swelling in left buttock, ill-defined margin, about the size of an orange. Side pressure on pelvis does not cause pain. Tenderness on pressure over postero-inferior iliac spine. No tenderness of sciatic nerve; some pain on full flexion

or extension of left hip-joint; nil per rectum: spine and hip-joint normal; chest normal. Radiogram shows blurring of outline of left sacro-iliac joint.

Operation.—On the 9th incision along posterior third of iliac crest and along sacrum to third external tubercle; glutei, periosteum, &c., raised from bone and great sacro-sciatic ligament, two superficial abscesses being opened en route: further abscess found in midst of gluteus medius. All these abscesses carefully scraped. Suspicious point at upper end of great sacro-sciatic ligament proved to be a sinus leading to sacro-iliac joint. With osteotome, posterior portion of ilium chiselled through into great sciatic notch and portion of bone elevated and removed, exposing joint, sacral surface of which was necrosed and formed a sequestrum. No intrapelvic abscess present. Sacrum gouged and curetted, whole area bipped and packed with iodoform emulsion gauze. Superior and inferior portions of wound sutured and packs brought out at middle. Sample of pus sent to pathologist. Some collapse following operation, but patient recovered with salines, &c. Fresh dressings applied over original.

On the 10th a fairly good night, more dressings applied and salines continued. On the 11th I removed packs and sutured wound under gas. On the 14th Prof. J. M. Beattie, City of Liverpool Bacteriological Department, reported *B. tuberculosis* present in pus. On the 24th wound quite healed except two small areas which were granulating. No sign of any residual abscess. General condition good. On Oct. 4th left leg put up in a Thomas hip-splint, pelvic belt applied. On the 13th walking short distances with crutches. On the 15th discharged. On the 22nd returned for inspection; walking well with crutches, wound quite sound. On Dec. 3rd walking without crutches.

In August, 1922, patient was thrown out of a pony-cart on to his back, but beyond a contusion over the buttock he sustained no harm. He still wears a pelvic belt, has gained over a stone in weight, and continues his previous occupation.

Conclusion.

We may fairly conclude, then, from the foregoing, that the old operations of trephining and scraping are not based on a sound conception of the anatomy and pathology of the joint; that the results of these methods are poor as shown by the records of cases, and that much better results are to be expected from more radical treatment.

References.

1. Collier, M.: THE LANCET, 1889, ii., 787.
2. Makins, G. H.: Trans. Clin. Soc., 1893, xxvi., 127.
3. Golding-Bird, C. H.: Trans. Clin. Soc., 1895, xxviii., 186.
4. Picqué, R.: Bulletins et Mémoires de la Société de Chirurgie de Paris, 1909, xxxv.
5. Rugh, J. T.: Therapeutic Gazette, third series, 1916, xxxii., 837.
6. Coffield, R. B.: American Journal of Orthopedic Surgery, 1918, xvi., 418.
7. Smith-Petersen, M. N.: Journal of Orthopedic Surgery, August, 1921, 400 (Old Series, xix., 8).
8. Albee, F. H.: Bone Graft Surgery, W. B. Saunders Co., 1917, 144.

OPEN ETHER FOR THE OCCASIONAL ANÆSTHETIST.

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SOME mystery still seems to cling to the administration of "open ether," the safest and easiest anæsthetic for patient and administrator alike; I therefore venture—as one fairly often called upon to give anæsthetics, but not as a professed anæsthetist—to describe the simple apparatus I use and the method I adopt. Many a country practitioner resorts to the more dangerous drug chloroform, because he has never learnt to use open ether and because he finds his "Clover's inhaler" hors de combat when he unearths it after a prolonged rest.

Apparatus.

First, my apparatus is home-made, with the exception of a good "drop-bottle" which, in an emergency, can be readily improvised out of a small medicine bottle, a rubber cork, and a piece of glass tubing.

The following items are needed: (1) A piece of thick white felt¹ (it can be obtained $\frac{3}{8}$ in. thick),

¹ The thick white felt can be obtained from Messrs. Maw, Son and Sons, 7, Aldersgate-street, London, E.C.

measuring 10 in. by 6 in.; (2) a duster or a small towel; (3) a circular piece of ordinary white lint about a foot in diameter. The sheet of felt is folded round into a cylinder and the edges carefully sewn together by a double row of stitches, the inner edges first, the outer edges last. The sewing stops at a point about three-quarters of an inch from the bottom, and the square corners are rounded off. The notch so formed fits comfortably over the patient's nose. At the opposite end the sewing is continued to the very top. The piece of lint is next to be used to form an accurately fitting and perfectly flat diaphragm across the cylinder about an inch or an inch and a half from the top. The centre point of the circular piece of lint is pushed down about three inches into the cylinder from the top, the edges uniformly arranged around the circumference, slightly pleated, and securely and evenly stitched to the top edge of the felt. The lint being now securely fixed, it is flattened out with the fingers and a further row of stitches carried round through felt and lint lower down. Thus a flat diaphragm across the cylinder is formed. The edge of the lint is allowed to hang down outside all round. This completes the mask.

Technique.

Before use, the mask and small towel (folded like a scarf) are placed in a bowl of very hot water for about ten minutes and kept hot. Two ounces of pure ether are next poured into the drop-bottle.

As a routine in most cases I like my patients (except small children) to have a hypodermic injection consisting of 1/12 gr. heroin and 1/100 gr. atropin half an hour before the operation. It usually makes them pleasantly drowsy and allays nervousness. After examining the heart, &c., and with a few reassuring words, I thoroughly grease the patient's chin, lips, nose, and cheeks with vaseline, explaining the reason. Next I take the mask from the hot water, wring it out with my hand and place it lightly over mouth and nose. Breathing the moist warm air is quite pleasant, and as a preliminary a few drops of eau-de-Cologne or tincture of orange may be sprinkled on the mask. I next place two or three wisps of dry cotton-wool on the diaphragm and drop on to them a few drops of ether, telling the patient that I am beginning to give him ether and urging him to breathe quite naturally. Very quickly he tolerates a more rapid flow of drops from the bottle and as the wisps of cotton-wool on the diaphragm become saturated a few more may be added. The stream of drops should be continuous and directed in turn over each segment of the diaphragm.

When the patient begins to show signs of losing consciousness, the little towel folded in the shape of a scarf is wrung out, put under the chin and held by the left hand up against the mask, the ends are brought round the mask on either side of the face, obliterating any space between mask and skin through which too much air may be drawn in. The notch will fit the nose accurately and eyes and forehead are absolutely bare and easy of inspection. As unconsciousness deepens the ether may be dropped more quickly, and, in an average case, it will be found that when two ounces have been used the patient is just "under" and ready for the preliminaries of the operation. When full anæsthesia is established it is permissible to place an extra wisp or two of cotton-wool on the diaphragm, use a little more ether, and cover the top of the mask with a small sheet of wool or fold over the edges of the lint, whereby the patient for a short time gets less air and a stronger ether vapour. It is useful to be able to do this while you refill your drop-bottle, or in case you may want to deepen anæsthesia quickly. At the same time it must be remembered—as was pointed out to me by a leading anæsthetist during the war—that the most essential point in giving open ether is that the drug should be administered constantly, uniformly, and continuously.

Advantages of the Method.

I think that the following advantages can be claimed for this modification of the old "ether cone" method:

1. An efficient apparatus can be made in half an hour.
2. The mask being damp and warm at the start, the inhaled vapour tends to irritate the mucous membranes to a minimum degree.

3. The patient's forehead and eyes are uncovered and easy of inspection.

4. "Going under" is infinitely less disagreeable to the patient than in the method which one so often sees adopted in which the whole face is covered with cotton-wool and a low mask upon which ether is slopped promiscuously.

The felt masks are best cleansed by careful washing, followed by a soak in 1 in 40 carbolic. Too much boiling causes them to shrink very rapidly and to become hard. In any case they shrink after a certain amount of use, and so one is provided with smaller sizes for children.

A CASE OF PERSISTENT JAUNDICE IN AN INFANT.

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THE following case of persistent jaundice in an infant, with atresia of the common bile-duct and biliary cirrhosis of the liver, is of interest.

An infant, 7 weeks old, was sent to the Royal Waterloo Hospital by Dr. I. Outram, of Edmonton, being admitted on July 7th, 1922. The complaint was persistent jaundice, which had commenced two days after birth, becoming more intense during the second week and had persisted since. The motions were whitish. The urine was very distinctly bile-coloured. The child had been taking its food (breast-milk and Glaxo) well, and so far had enjoyed good health.

Condition on Examination.—The child showed no malformation, was seen to be fairly well nourished and markedly jaundiced on skin and conjunctivæ. The urine was distinctly bile-coloured and the faeces looked whitish or clay-coloured. The infant's napkins showed bile-staining. The liver was considerably enlarged, the lower border being over two inches below the costal margin. The spleen was not definitely palpable. Gentle pressure in the right hypochondrial region evidently caused pain, which was no longer noted after about a week. Weight of child, 8 lb. 4 oz. Nothing abnormal found in the chest. The mother stated that there is no similar case in her family, although her three other children had suffered from icterus neonatorum which disappeared in four or five days. She had had no miscarriages.

On the 11th there was a clinical note to the effect that there had been continuous vomiting since admission but the child had taken its food well. The icterus was still as marked as previously; there was no pyrexia. The child gained weight until the 14th, but on the 21st a loss of 8 oz. since admission was noted, and the child was not looking so well. The child continued to lose weight, and on August 14th the general condition was distinctly worse. The lower border of the liver was no longer palpable. The child died on the 23rd, aged 14 weeks.

The jaundice varied slightly during the last two weeks, but always remained fairly marked, being especially conspicuous on the conjunctivæ. The infant was fed on milk-mixtures which were altered to suit the circumstances when weight began to be lost, but no change of diet prevented further loss. The temperature varied from 96° to 98.4° F., and the pulse from 100 to 145, being mostly about 120. The bowels acted from two to three times daily as a rule, but sometimes there were four to five motions in 24 hours. No hæmorrhages in the skin or mucous membranes were noted at any time since birth.

The provisional diagnosis made during life was "absence, or atresia, of the bile-ducts." Although some tenderness existed and a little resistance was

felt in the region of the gall-bladder nothing definite could be made out at any time, and the tenderness disappeared during the last two weeks of life. There were no signs of syphilis. The Wassermann reaction was negative.

Necropsy.—At the necropsy, which was made by my house physician, Dr. Bruce White, within 24 hours of death, nothing abnormal was found in the lungs, heart, intestinal tract, stomach, glands, or serous cavities, although all the tissues were bile-stained. No hæmorrhages were seen. The liver was small and almost completely hidden under the costal arch. It was very dark green in appearance and indented on the surface in a manner suggesting cirrhosis. The gall-bladder was represented by a thin structure about one-fourth the ordinary size.

The liver and portions of the gastro-hepatic omentum, stomach, pancreas, and duodenum were removed together, placed in Kaiserling's solution, and sent to Dr. T. H. G. Shore, curator of the Museum, St. Bartholomew's Hospital, for an opinion. His report stated:—

"The liver is firm and of a dark-green colour. The anterior margin is sharp. The surface is smooth, but somewhat tuberculated, raised areas being separated from one another by linear depressions which have a branching arrangement, and are doubtless due to the close relation some of the portal spaces have to the surface of the liver. After a short preservation in Kaiserling's solution the weight of the liver is 152 g., which is probably not materially different from its weight in the fresh state. Anatomically the lobes of the liver are natural. The gall-bladder is small, cylindrical, and thin-walled, and contained a small quantity of dark-green bile. The hepatic ducts are not distended. The openings of the gall-bladder into the cystic duct, and of this into the common bile-duct are demonstrable, but the lumen of the common duct gradually tapers until it can be traced no longer, and the duct is lost in a mass of toughish fibrous tissue half an inch or more from what should be its termination. The portal vein and hepatic artery are easily dissected and are normal. The small portion of the pancreas left attached to the specimen contains the duct of Wirsung, which can be traced to a papilla on the mucous membrane of the duodenum situated about one and a half inches from the pyloric sphincter. This doubtless represents the ampulla of Vater. No other duct joins that from the pancreas at this point. The pancreas presents a normal appearance, except for some staining with bile pigment, a condition shared also by the duodenum.

Microscopic examination of the liver shows distension of the biliary radicles within the lobules. These small ducts contain plugs of dark-green material, and in places the adjacent liver tissue is stained in a similar manner. Some of the liver cells are small, and their nuclear staining is poor, but on the whole the cells are well preserved. The portal spaces are prominent; the bile ductules are distended and contain the same dark-green material as the bile capillaries; the arteries are thickened by an increase of the tissue of their middle coats, and the branches of the portal vein are similarly affected. The connective tissue of the portal spaces is increased in amount, and is markedly fibrous. Such thickened portal spaces can be seen lying at the bottom of fissures from the surface, as described above. Fibrosis is limited to the neighbourhood of the portal spaces."

Remarks.

Rolleston,¹ writing of this condition, states that the cirrhosis of the liver is first (probably) and cholangitis and obstruction of the ducts secondary and later results. Holmes² is of opinion, however, that it is usually a developmental anomaly and not the result primarily of inflammatory processes. He does not think that congenital obliteration of the larger bile-ducts is an extremely rare condition. A good number of cases have now been reported. Holmes quotes Benecke to the effect that in the 74 cases recorded by him the constriction or atresia occurred at the level of the papilla of Vater in the great majority of cases. Thomson³ states that of 67 cases 41 were males and 26 females. Rolleston¹ further remarks that "the spleen is usually enlarged, sometimes very greatly." (In this case it was never definitely enlarged.) "The jaundice may be present at birth . . . in some

¹ Diseases of the Liver, Gall-Bladder, and Bile-ducts, 1912.

² American Journal Diseases of Children, 1916, xi., 405.

³ Clinical Study and Treatment of Sick Children, 1921, Oliver and Boyd.

instances the infant is not jaundiced until two to three weeks after birth. When once established the jaundice is progressive. There is never much itching. The meconium is usually normal and rarely devoid of bile. The motions are usually clay-coloured from the first. Constipation is the rule; in a few instances diarrhoea is noted." (In the present case the bowels were always freely open.) Haemorrhages from the mucous membranes, into the skin, and from the umbilicus occur in a large number of cases. (No haemorrhages were noted in this case.) Infants usually waste if life is sufficiently prolonged (see above). Thomson³ observes that "no case in which the diagnosis was confirmed post mortem has survived the first year."

As regards treatment, Holmes² states that the child's nutrition must be maintained by administra-

tion, if necessary, of bile or bile-salts. With regard to surgical treatment, my colleague, Mr. J. A. Cairns Forsyth, remarks: "Since the outlook without operation is hopeless, exploratory laparotomy is justified on the off-chance that the obstruction may be low down in the common duct and anastomosis feasible. Unfortunately, only in about 16 per cent. of cases are the gall-bladder, cystic, and hepatic ducts pervious to the flow of bile. In addition, the patients are bad subjects for surgical interference on account of their tender age and the grave risk of haemorrhage. Failures have been common and successes few."

The liver from this case was shown at the Section for the Study of Disease in Children of the Royal Society of Medicine in November, 1922.

Medical Societies.

BRITISH CONGRESS OF OBSTETRICS AND GYNÆCOLOGY.

THE Fourth British Congress of Obstetrics and Gynæcology was held at the Royal College of Surgeons, Edinburgh, on April 19th and 20th, under the joint chairmanship of Dr. LAMOND LACKIE and Dr. HERBERT SPENCER. The societies taking part in the Congress consisted of the Royal Society of Medicine (Obstetrical and Gynæcological Section), Edinburgh Obstetrical Society, Glasgow Obstetrical and Gynæcological Society, Midland Obstetrical and Gynæcological Society, Royal Academy of Medicine in Ireland (Obstetric Section), Ulster Medical Society, and the North of England Obstetrical and Gynæcological Society. Dr. Lamond Lackie, as President of the Edinburgh Society, in a few words welcomed the members of the Congress to the ancient City of Edinburgh.

On April 19th a discussion was held on

INTRINSIC DYSMENORRHEA.

Prof. BLAIR BELL (Liverpool), in opening the discussion, said that originally the executive committee had hoped to introduce the discussion by issuing a joint report upon various aspects of the problem based upon information received from numerous centres. For various reasons this information had not been forthcoming and he had been asked at a few weeks' notice to prepare the opening paper. His remarks, therefore, were based upon the results of his own experience and results, derived from hospital and private patients, and from the statistical reports published by Marie Tobler, May P. Jacobi, A. E. Giles, and Catherine Chisholm. He had been surprised to find how little statistical evidence was available apart from that contained in the writings of the above authors. Statistics were of little value for the purpose of this discussion unless they were based upon healthy subjects. His own cases numbered 1000, of which 400 were private patients and 600 hospital patients.

Dysmenorrhœa was a condition which throughout the ages had been the cause of much trouble and speculation. It was mentioned even in writings 3000 years B.C. and later by Hippocrates. It was only within the last 100 years, however, that any attempt had been made to classify the various forms of menstrual pain into such types as "neuralgic," "congestive," &c. Marion Sims, in 1880, had first insisted that dysmenorrhœa was a symptom and not a disease, a point of view which no one disputes to-day.

The Classification of Types of Menstrual Pain.

The speaker considered, however, that the classification of the types of menstrual pain in common use to-day was not satisfactory, and in accordance with modern views based upon pathology rather than symptoms. He had suggested the terms "intrinsic"

and "extrinsic" as being more in accord with scientific fact. The word "intrinsic" meant "inherent," and included all forms of dysmenorrhœa due to some disturbance in structure or function of the local organs of menstruation or to general causes inherent in the individual. "Extrinsic" dysmenorrhœa meant pain due to some acquired lesion. The classification of intrinsic dysmenorrhœa which he used and taught was as follows:—

1. *Structural Anomalies*.—(a) Undevelopment of uterus: (1) Undevelopment with normal shape; (2) "cochleate" uterus with or without undeveloped ovaries; (3) acute flexions of fully developed uterus. (b) Gross malformations: (1) Congenital hypertrophy of cervix; (2) imperfect fusion of Müllerian ducts; (3) atresia of vaginal cervix with single or divided cavity.

2. *Physiological Anomalies*.—(1) Intra-uterine clotting; (2) exfoliation of the endometrium.

A Review of the Facts Elicited.

Prof. Blair Bell next proceeded to review in a series of 16 tables the facts derived from the investigation of his own cases and those of the authors mentioned. Table 1 showed the relation of the onset of intrinsic dysmenorrhœa to the age of the patient at the time of consultation. He found that in 400 private patients the average age of onset of menstruation was 15. The onset of intrinsic dysmenorrhœa was primary in 46 per cent. of cases, and secondary in 5 per cent., whilst the average age of the patients at the time of consultation was 33. In the case of 600 hospital patients primary intrinsic dysmenorrhœa was noted in 43.5 per cent. of cases, secondary dysmenorrhœa in 6 per cent., whilst the average age at time of consultation was 35½. Table 2 indicated the frequency of the different periods of pain in dysmenorrhœa. In 204 private patients the symptom was pre-menstrual in 26.5 per cent., intra-menstrual in 53 per cent., and post-menstrual in 1.5 per cent. In 18.5 per cent. it was both pre-menstrual and intra-menstrual. Intra-menstrual and post-menstrual pain was only present in 1 per cent. of 299 hospital patients. Prof. Blair Bell had found that out of 600 histories of hospital patients 63 per cent. complained at some time or other of menstrual pain. In 50 per cent. the dysmenorrhœa was intrinsic and in 13.5 per cent. it was extrinsic. In the case of girls, in a series of 600 hospital cases 43.5 per cent. of cases suffered from intrinsic dysmenorrhœa. In the case of 600 adults the incidence of intrinsic pain was 35 per cent.; 29 per cent. of this figure was continued from girlhood. With regard to the frequency of dysmenorrhœa in general in girls, Jacobi had found pain present in 53 per cent. of cases. Giles gave 65 per cent., Chisholm 42 per cent. Prof. Blair Bell's own figures were 46 per cent. in the case of private patients and 43.5 per cent. in hospital cases. As to the standard between primary and secondary dysmenorrhœa, the speaker had taken two years after the onset of the menstrual function. If pain began coincidently with menstruation it was "primary," if not until two years had elapsed he called it "secondary." Dysmenorrhœa was primary in from 67–69 per cent. of all cases of the intrinsic

type, and secondary in 7.5-9.5 per cent. Extrinsic dysmenorrhœa, on the other hand, was never "primary" on the cases investigated, but "secondary" in 21.5-25.5 per cent. In general the pain is primary in 67-69 per cent. and secondary in 31-33 per cent. of all cases in the experience of the writer of the paper. With regard to the influence of child-bearing on primary intrinsic dysmenorrhœa, Prof. Blair Bell found that out of 262 hospital cases, 68.5 per cent. had had children and of these 21.5 per cent. had been cured by pregnancy. In the case of 184 private patients, 53 per cent. had been fertile and 49 per cent. were subsequently cured. These figures were in striking contrast to those of "secondary" intrinsic dysmenorrhœa, for out of 57 cases all were sterile.

Treatment.

As regards treatment, if the uterus is undeveloped, Prof. Blair Bell advocated the administration of thyroid and ovarian extracts. This cures in a large proportion of cases. A uterus may be undeveloped even when the cavity appears to be normal in length as measured by the sound. Consequently the condition is easily overlooked. If the uterine cavity is shortened amenorrhœa is usually present. In the "pubescent" uterus, a common cause of intrinsic dysmenorrhœa, the cervix takes up half the length of the uterus, and a diagnosis can only be made under general anæsthesia. In the "cochleate" type, or "C-shaped" uterus, another common cause of intrinsic dysmenorrhœa, sections show an undue proportion of fibrous tissue. If such a uterus becomes pregnant, pregnancy leads to the replacement of the fibrous tissue by muscle and the menstrual pain is removed. Scanty menstruation means deficient ovarian substance. On the other hand, the ovaries may be fully developed even if the uterus is pubescent. Menorrhagia may then occur. The speaker did not think that the so-called "pin-hole" os uteri was a cause of menstrual pain. He had seen many cases without any dysmenorrhœa at all. If pain was present he attributed it to other developmental causes. With regard to the "cochleate" uterus, he had been much struck by its frequency and by the severity of the pain it produced. He had treated 51 cases by his method of anterior hysterotomy, and with excellent results. Many of these cases had previously been dilated and curetted without relief to their pain. The operation was not easy owing to lack of space, but the technique could be acquired with practice, and the results fully justified its adoption. It had been stated that congenital displacements of the uterus accounted for 45 per cent. of cases of menstrual pain. This was contrary to his own experience. The speaker had, however, noted the most acute pain in cases of congenital undeveloped uterine cornua.

With regard to the question of intra-uterine clotting, he was on debatable ground. Fibrin ferment was normally absent from the menstrual discharge, and he believed that it was extracted by the endometrium. Beckwith Whitehouse, on the other hand, had asserted that intra-uterine clotting was normal, and that it is broken up by thrombo-lysin secreted by the cervical glands. He personally did not believe that this was so, as the menstrual fluid is still of the same character after amputation of the cervix. He regarded all intra-uterine clotting as pathological, and due to the fact that the blood passes through the endometrium so quickly that the ferment cannot be extracted. He therefore used calcium lactate to tone up the uterus in such cases. As regards exfoliation of the endometrium, he had never seen the so-called "mucous casts." All casts not "endometrial" are formed of fibrin, and he thought that Cuthbert Lockyer's description of the case was not correct, as they were based upon material showing autolytic changes. True "casts" exhibit pre-menstrual decidual reaction in different degrees, and a typical "ground-glass" appearance due to intercellular exudate. All his cases were accompanied by menorrhagia.

Conclusions.

Prof. Blair Bell's conclusions were as follows: (1) Menstrual pain is relative. (2) The importance of pathology in the treatment and classification of dysmenorrhœa is one of the constant needs of to-day. (3) Intrinsic dysmenorrhœa is chiefly primary and is common; extrinsic dysmenorrhœa is secondary and very rare. (4) Under-development of the uterus is an important factor in intrinsic dysmenorrhœa as a cause. (5) Intra-uterine clotting is very common as a cause of extrinsic dysmenorrhœa. (6) Exfoliation of the endometrium is due to stripping up of the membrane by effusion of blood. (7) Empirical dilatation of the uterus is not only disappointing, but is keeping back the scientific study of this condition.

Dr. R. W. JOHNSTONE (Edinburgh) contributed a short paper on the

Results of Dilatation of the Cervix With or Without Curettage

from figures supplied by his own colleagues, Dr. Leith Murray and Dr. J. E. Gemmell, of Liverpool, and Dr. J. A. Kynoch, of Dundee; 576 cases had been investigated. 49.8 per cent. were permanently cured; 32.8 per cent. were temporarily cured or relieved; 17.4 per cent. were not relieved, and of these 4 per cent. were worse after the operation. Of 218 married women complaining of both sterility and intrinsic dysmenorrhœa, treated by dilatation of the cervix and curettage, 35 per cent. conceived and obtained complete or partial relief from dysmenorrhœa; 14 per cent. conceived without having obtained any relief. Two years had been taken as the period after operation, at which the results were judged. Graduated dilators of the Hawkins-Ambler type were used by Leith Murray, and dilatation being carried to $\frac{3}{4}$ in. (26 Hawkins-Ambler dilator). Dr. Kynoch and Dr. Johnstone had used dilatation by laminaria tents, but the speaker could not claim any better results, although theoretically the longer dilatation should be preferable. Stem pessaries were also used by Dr. Lamond Lackie and himself with good results. Pozzi and Dudley's operations apparently found favour with very few surgeons on the results received.

A Further Series of Observations.

Dr. GEMMELL (Liverpool) summarised a series of observations based on 350 hospital cases from 1904 to 1922. After-histories had been obtainable in 150 instances. Excluding all extrinsic causes, he considered that intrinsic dysmenorrhœa was due to faulty uterine contraction, as the result of a functional derangement. He grouped his cases as follows: Under-development of uterus, 34; mal-development of uterus, 210; acute ante-flexion, 160; acute retro-flexion, 6; atresia of cervix, 6. Investigation of this subject was difficult as, except in isolated examples, a complete pelvic examination was impossible. Further examination of the secretions during the periods was also difficult and distasteful to patients. No solid microscopic proof, apart from a few sections, was available to show actual structural alterations in the uterine wall, and he doubted the views set forward as to organic obstruction by membranes or clots as being a cause of pain. Clots in the vagina were no proof of clots being present in utero. They were absent in 47 cases and usual in 33 per cent. of patients. He thought that interference with the "polarity" of the uterus was common in mal-developments and probably accounted for the pain. Marriage appeared to increase menstrual pain rather than to diminish it, and sterility was a very usual accompaniment. His treatment was to dilate the cervix and curette, and introduce a gauze pack for 48 hours. The dilators he used were those introduced by Briggs and Grimsdale, often called the "Hawkins-Ambler" type. Of 68 cases, 44 per cent. had been permanently cured and 10 per cent. relieved for periods varying from three months up to several years. The failures amounted to 15 per cent.

Dr. HERBERT SPENCER congratulated Prof. Blair Bell upon his excellent paper. He was surprised,

however, to hear no reference made to the work of Hermann, Andrews, and Champneys. Also Prof. Blair Bell had made no reference to "intermenstrual" pain, the "Mittel-schmerz" of German authors. Dr. Spencer was in agreement as to the rarity of primary extrinsic dysmenorrhœa. Some years ago he had met with one case which he had since recognised was due to a utero-rectal adenomyoma. The worst case of menstrual pain that he personally had seen occurred in a Russian patient with a double uterus and vagina. Prof. Blair Bell had stated that only 50 per cent. of patients are cured by pregnancy. He wished to know what standard of cure was taken, as he thought that many more must be relieved at least. Personally he could recall very few cases of *absolute* cure in intrinsic dysmenorrhœa. Pozzi's operation did not seem to be much used in this country, but personally he had seen extremely good results. With regard to the operation of anterior hysterotomy, he regarded it as rather a severe operation in a young virgin. The old hysterotomy should do the same thing and much more easily. The operation described by Prof. Blair Bell did not appeal to him, and he thought it unnecessary. Further, he emphasised the fact that it was impossible to dilate a small cervix to 1 cm. without producing laceration. He had used laminaria tents many times, and his views coincided with those of Dr. Johnstone. He had also found stem pessaries useful, but was rather afraid of leaving the instrument in situ for any length of time.

Mr. CHRISTOPHER MARTIN (Birmingham) was of opinion that the subject was far too long for discussion, as in a way it covered the whole field of gynæcology. He thought that figures relating to dysmenorrhœa, whether obtained from hospital or private patients, were largely fallacious, as the majority of patients complain of menstrual pain. He was of opinion that much dysmenorrhœa might be prevented if girls were brought up on a more rational basis. Further, he thought that corsets should be avoided as they were a fertile cause of pre-menstrual congestion. Girls should have more exercise, and be brought up more as boys. Mr. Martin also referred to mild chronic appendicitis in childhood as being a factor in the causation of dysmenorrhœa in adult life. Dilatation and curettage per se he did not consider a satisfactory operation, but he had obtained good results by combining it with division of the posterior lip of the cervix. He thought that Prof. Blair Bell's operation was very difficult to perform in virgins with safety. In conclusion, he emphasised the danger of instituting treatment with such drugs as alcohol and morphia.

A Criticism of Terminology.

Prof. ARCHIBALD DONALD (Manchester) did not like the term "intrinsic" introduced by Prof. Blair Bell. The word means "inherent," and therefore a pain could not be called "intrinsic." Further, where is a line to be drawn, as the causation of menstrual pain is so diverse. He thought that the one class of case everybody could discuss was that of the young and apparently normal girl, engaged in some daily occupation—e.g., teaching, nursing, &c.—who every month, perhaps for one or two hours, is absolutely unable to "carry on" on account of the severe menstrual pain. This class of case was relatively *not* very common. In the majority of such he had found a "cochleate" uterus present. He did not agree that the cervix was always elongated and the corpus uteri small. Often the reverse was the case. Possibly, in addition, a defect in the endometrium exists which is so far unrecognised. He certainly had found a "diffuse adenoma" present in some cases. Further, he was not so pessimistic about the results of dilatation and curettage. In his experience 82 per cent. of patients were "improved." It was difficult to say how many were "cured." His practice was dilate to "19"—"20" dilator (Manchester pattern) and to scrape with a flushing curette. The uterus is packed for 24 hours. In former days he used to introduce a stem pessary, but never felt happy about leaving a foreign body in utero. One patient had

ceased to menstruate entirely as a result possibly from atrophy of the endometrium.

Divergent Views.

Mr. BECKWITH WHITEHOUSE (Birmingham) did not agree with Prof. Blair Bell's classification of the physiological anomalies of the uterus as a cause of intrinsic dysmenorrhœa, especially in relation to this question of intra-uterine clotting. Fifty per cent. of all women habitually and *normally* pass small clots from the uterus into the vagina during the menstrual function. He had stated this on previous occasions, and he repeated it again now. Also he did not believe that 50 per cent. of women suffered from intrinsic dysmenorrhœa, and he thought that the influence of the passage of clots on menstrual pain was very little. Prof. Blair Bell and he held divergent views upon the factors involved in the menstrual function, and he did not think that the arguments as set forward in any way refuted his theory. He had never stated that the secretion of the cervical glands contained thrombolytin. Also clots were almost always present in utero if a search was made. In health they were certainly small and easily overlooked, but he was quite convinced as to the correctness of his views. Further, the composition of the menstrual discharge in the human species can be accounted for on a much simpler hypothesis than by attributing any special power to the endometrium, such as the extraction of fibrin ferment. This was too far-fetched, and not in accordance with the facts as observed in the human species or of those in the realm of comparative anatomy. With the other aspects of Prof. Blair Bell's paper he was in complete agreement, and he heartily congratulated him upon the very thorough and exhaustive investigation. Personally, he limited the term "intrinsic" dysmenorrhœa to those very acute cases of menstrual pain which *totally incapacitated* the individual whilst it lasted, just as Prof. Donald had described. Accordingly, in collecting his own statistics his assistant, Mr. Danby, had disregarded a large number of mild cases of so-called "dysmenorrhœa" and had only investigated the "acute" type mentioned; 39 patients of this type had been traced. Dilatation and curettage had been performed in 23 cases, with cure in 6, relief in 12, and failure in 5. In two cases the operation was repeated with permanent cure after the second dilatation. Pozzi's operation had been performed twice with only partial success. One patient had had four abortions *after* the operation! Of 14 married patients 5 only had become pregnant, and of these 4 constitute 4 of 6 patients who stated out of a total of 14 that marriage had cured them. The deciding factor, therefore, appears to be not so much marriage as pregnancy, and, further, a pregnancy that *proceeds to term*. Abortion does not lead to that development of the uterus so essential to promote cure. Mr. Whitehouse noted that a so-called "cast" can be extruded from the uterus quite painlessly, as was the case with a patient seen by him a few years ago, who from the age of puberty had passed a typical "menstrual clot" each month for several years without any other hæmorrhage and without discomfort. There was no menorrhagia in this case, and the speaker regarded it as a reversion to the more primitive type of menstruation in the lower mammals.

One interesting point that had resulted from Mr. Danby's investigation of the total cases of dysmenorrhœa attending the General Hospital, Birmingham, was that the number of patients applying for relief during the past five years was almost double that of the preceding five years. Was this a psychological factor and part of the aftermath of war, or the result of unemployment and because women now had more time on their hands to think of their bodily ills?

Dysmenorrhœa as a Symptom of Uterine Maldevelopment.

Prof. R. J. JOHNSTONE (Belfast) pointed out that dysmenorrhœa is a symptom, and only a symptom, of uterine maldevelopment; 70 per cent. of women

suffer more or less pain at the menstrual epoch, but he, too, only regarded menstrual pain as dysmenorrhœa when it actually disables the patient. He did not think that any gynæcologist could cure completely true intrinsic dysmenorrhœa, but they could certainly relieve it very considerably. He was very glad that Prof. Blair Bell had made a clean sweep of the old terminology of "congestive" and "spasmodic" dysmenorrhœa, but he was very surprised to hear that the curative effect of childbirth appeared from statistics to be so slight. Had Prof. Blair Bell aimed at including in this category only ideal "cures"? He was also very glad to find such conditions as "conical cervix," "pin-hole" os, and "retroversion" left out of the list of causes of menstrual pain. They, in his opinion, were simply concomitants. He was interested in the account of anterior hysterotomy, but wondered whether it would stand the test of ten years' experience. With regard to the operation of dilatation of the cervix, he was not in favour of dilating to such degrees as some speakers had advocated. This was not "dilatation"; it was "divulsion." Also he did not believe in leaving solid bodies like "stem pessaries" in the uterus. One point had not been raised, and that was what is to be done with the patient who has had drug treatment and these various operations and still complains of severe pain? Personally he had lately used radium to produce amenorrhœa in this type of case.

The Degree of Disablement.

Dr. WATTS EDEN (London) observed that Prof. Blair Bell had made a very valuable contribution to our knowledge of dysmenorrhœa. He was surprised to find how frequent from the statistics dysmenorrhœa appeared to be. He could not believe that 50 per cent. of all women suffered from dysmenorrhœa. If this was stated then we do not all mean the same thing. Relativity of pain is a very important factor in the case, and we must have some kind of standard. Nobody expects the menstrual process to be free from pain entirely, but this is not dysmenorrhœa. The degree of disablement either as regards work or recreation is the true test. He was of opinion that taking this as a basis the number of *real* cases of intrinsic dysmenorrhœa was very small. He had placed under observation various so-called cases of severe menstrual pain, and practically all were found not to exist. As a matter of fact, he could only remember one *real* case of dysmenorrhœa in 10 to 12 years. He did not think it very profitable to employ any fixed terminology with regard to dysmenorrhœa, but he thought the term "intrinsic" better than the old word "spasmodic." The latter limited the field and made us take too narrow a view of the problem, disregarding such other factors as the parts played by the ovaries and other endocrine glands. With regard to the so-called "cochleate uterus," he was surprised to hear Prof. Blair Bell's figures. Personally he regarded it as being a very rare anomaly, although the anteflexed, retroposed uterus was, of course, common. The *small* anteflexed and retroposed or cochleate uterus was certainly not common in his experience. In many cases one cannot find any one anatomical point to account for menstrual pain. Dr. Eden also was not in agreement with Prof. Blair Bell's remarks as to the amount of uterine hæmorrhage being a criterion of the degree of uterine development. He was rather of opinion that an alteration in the balance of the whole endocrine organs may be a more important factor. The speaker referred to the alteration in menstruation produced by Graves's disease and myxœdema.

With regard to treatment, he had been much impressed with the operation of anterior hysterotomy when first described, but further experience had led him to the conclusion that it had no special advantages. It was the most difficult operation he had ever performed, and the end-results had been no better than with simple dilatation. He was in entire agreement with Mr. Christopher Martin as to the need for training of girls, although he did not acquiesce in the

need for abolishing corsets! One of the most useful lines of social research would be an extensive coördinated inquiry into the habits, games, and work of the adolescent girl and the influence of the same on the menstrual function. Dr. Eden, in conclusion, referred to the relief of dysmenorrhœa by means of atropine sulphate. In his hands, when given in doses by mouth of 1/100 gr. t.d.s. two or three days before, or during the menstrual function, atropine relieves pain to a remarkable degree. He thought that it might be tried with advantage in the 50 per cent. of cases where all surgical treatment fails, and where no obvious anatomical anomaly exists.

A Problem of Function.

Dr. J. FAIRBAIRN (London) observed that when he first received the questionnaire he was not at all clear what the word "intrinsic" meant. Was it a defect in "structure" with which we were concerned or was the problem one of "function"? He proposed to discuss the matter from the point of view of "function" only. Almost every speaker, with the exception of Dr. Eden, had looked on the *local* effects only. We were discussing a purely physiological function, and Prof. Blair Bell had attempted to show that 50 to 60 per cent. of all women were abnormal in this respect. Various types of uterus, "cochleate," and so forth, were described, but he wished to observe that no uterus was made to pattern, and simple variations had not been taken into account. Honesty of purpose did not always imply accuracy of observation. The views of the individual are tinged by his wishes. Dr. Fairbairn wished to lay stress upon the psychological aspects of the problem as apart from the anatomical and physiological. Pain varies from time to time. Sometimes it increases with the responsibilities of life, and is often acquired under stress, mental or physical. Frequently dysmenorrhœa is associated with very general nervous symptoms such as migraine, headache, &c. Prof. Blair Bell had rightly laid stress on civilisation and its influence upon menstrual pain. Nature means reproduction to follow directly upon menstruation, but the exigencies of civilisation prevent this. Another point to emphasise, also, is the modern tendency to recognise menstruation as *necessarily* being associated with pain, the so-called "poorly time." Girls should be brought up as boys, as had been mentioned by previous speakers. If pain was not *expected* it frequently would not appear. What we require, as Dr. Eden had pointed out, was a series of relative statistics relating to women under different circumstances. Here in Scotland, for example, what was the influence of out-door occupations upon the menstrual function? Dr. Fairbairn referred to Dr. Head's Croonian lecture on the Relief of Pain, and he looked forward to the time when more would be done by mental training rather than by operating. Like other surgeons, his results of dilatation or "divulsion" of the cervix were not good. Success in this respect, however, depends upon the psychology of the "operator" and the "operatee." He could not believe that pregnancy had so little influence in the cure of dysmenorrhœa, as he had seen so many good results from this cause.

Dr. HAIG FERGUSON (Edinburgh) thought that the last speaker was probably correct in his estimation of the psychological factor in the cause of pain. Where cases are *not* relieved at all, however, some developmental defect was probably at the base. He was interested to hear the good effect attributed to atropine by Dr. Eden, as he himself had also successfully treated dysmenorrhœa for many years with hyoscine and belladonna. With regard to the influence of ovarian function on menstruation, he quoted an instance of three patients in one family, the grandmother, mother, and daughter, who all menstruated only two to three times a year and yet all had large families.

Differences in the Character of the Pain.

Dr. GIBBON FITZGIBBON (Dublin) called attention to the difference in the character of pain in extrinsic

as compared with intrinsic cases. In the former the discomfort began several days before. The true intrinsic dysmenorrhœa he regarded as being due to spasmodic contractions of the uterus endeavouring to dilate the cervical canal. His standard had always been based upon interference with the patient's ordinary vocation. He agreed that the psychological factor was important but, after all, there was a very small number of real cases compared with the figures contained in Prof. Blair Bell's statistics. If the general health is improved dysmenorrhœa also often disappears. This is possibly due to balancing in the endocrine system. The speaker also drew attention to the fact that menstruation usually commences at 14-15 years of age, whereas with our civilisation sexual life does not generally begin until 25-26. Of his own cases of true intrinsic dysmenorrhœa 60-70 per cent. were cured by dilatation of the cervix. Sterility was cured in about 50 per cent. of cases. He had given up Dudley's operation as it never divided the os internum. He always carried the degree of dilatation to actual splitting of the os internum. If not the pain generally recurs. The longer the condition has existed the more difficult is it apparently to effect a cure. As to the onset of symptoms, Dr. FitzGibbon's own experience was not in accord with that contained in Prof. Blair Bell's first table. Hyoscine is a useful drug in diagnosing the anti-spasmodic from the spasmodic type of case. The speaker raised the question as to whether this condition of undevelopment of the uterus can be prevented. Personally, he thought it could by compelling the adolescent girl to take sufficient mental and possibly physical rest. He was much averse to mental over-exertion during the growing period and deprecated the present-day tendency to "examination pressure." Calcium is certainly an excellent tonic to unstriated muscle and thyroid helps in promoting uterine and possibly ovarian development. After all, however, pregnancy and a full-term labour is the best cure of dysmenorrhœa. With regard to anterior hysterotomy, he thought that as good results could be obtained by other means. It was a very difficult operation to perform.

Prof. B. P. WATSON (Edinburgh) observed that the first difficulty was the want of a proper definition as to the exact index of pain. He was in cordial agreement with Dr. Eden and Dr. Fairbairn about the importance of general hygienic treatment before any form of operative treatment was attempted. Dysmenorrhœa was often a general condition and not local, as shown by the accompaniment of general vaso-motor disturbance. Acute severe dysmenorrhœa, he thought all would agree, must be muscular and due to irregular disordered contractions of the muscle in the body of the uterus, or to spasmodic contraction of the fibres at the os internum. If relaxation of the fibres does not occur a want of polarity must be present. The coincident contraction of fundal and cervical fibres may be a contributory factor to the associated sterility so often present in these cases. He was of opinion that when any of the operations described do any real good, they do so by putting out of action the internal sphincter of the uterus. This accounts for the variability of cures. He prefers not to be content with simple dilatation alone, but to keep the cervical canal patent for six to seven weeks with a glass stem pessary. Cases which do not respond to this treatment or to plugging the uterus with a gauze pack are due, in his opinion, to irregular contractions of the uterine wall from excess of fibrous tissue. This can be helped by developing the uterine musculature with thyroid and ovarian substance after operation. Prof. Watson has used atropine very successfully and he noted that it acts in the same way by controlling unstriated muscle.

Co-education a Means of Improving General Hygiene.

Dr. BETHEL SOLOMONS (Dublin) favoured co-education of girls with boys as a means of improving general hygiene. He did not agree with Prof. Blair Bell's classification of dysmenorrhœa, as he thought it only tended to complicate the subject. The terms "constitutional" and "local" he considered equally met the

problem. He was surprised to hear from some speakers that the operation of posterior division of the cervix is still done. Dilatation of the cervix will do all that is necessary if it is pushed to the point of overcoming resistance. Division of the cervix usually results in a profuse leucorrhœa and lasting sterility. He agreed with Dr. Johnstone that cases unrelieved by dilators can often be cured by tents introduced in a sterile manner. It has been said that it is unnecessary to replace a retroverted uterus in a patient suffering from dysmenorrhœa. He had, however, seen several cases where a uterine fixation had cured and a previous cervical dilatation had failed. Dr. Solomons suggested that when dilatation does cure dysmenorrhœa it does so by possibly relaxing the cervico-uterine ligaments described by Hastings Tweedy.

Conclusions.

Dr. LAMOND LACKIE, in summing up the discussion, referred to the enormous diversion of opinion between various speakers. Apparently we were disagreed about the frequency of dysmenorrhœa, its causes, and its classification, and its possibility of cure. Prof. Blair Bell and many others regard dysmenorrhœa as being essentially due to mal-development of the uterus. Other speakers had emphasised the psychological elements. With regard to cure, Dr. Herbert Spencer had expressed the opinion that he doubts whether a cure ever does occur. Personally he had no doubt upon this point, as Dr. Spencer would have found if he had sent out a questionnaire. Prof. Watson thought that endocrine therapy would become more important as time went on. Dr. Lackie had not fallen in love with Prof. Blair Bell's operation of hysterotomy, but he was sure that the Congress was much indebted to him and also to Dr. Johnstone for the excellent papers and reviews which had been submitted.—Prof. BLAIR BELL replied.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ANÆSTHETICS.

A MEETING of this section was held on April 20th, Dr. A. L. FLEMMING presiding.

Dr. J. H. CHALDECOTT opened a discussion on

CORONERS' INQUESTS: CLASSIFICATION OF DEATHS UNDER ANÆSTHETICS AS VIOLENT OR UNNATURAL.

He said that the invitation to open this discussion had been prompted by a letter from him published in THE LANCET recently; for the title of his paper he was indebted to a critic in the lay press, who reproached him for being unacquainted with the section of the Coroners Act which says: "On report of death the coroner, if he has reason to suspect the death to be a violent or unnatural one, shall hold a public inquest," and the writer went on to say: "And death from chloroform poisoning, whether immediate or delayed, is obviously unnatural." Dr. Chaldecott said he would endeavour to show, first, that in view of the attitude of coroners towards other surgical deaths it was not obvious that all anæsthetic deaths are unnatural, and, secondly, that it would be to the public advantage if inquests were not held on all anæsthetic deaths as a matter of routine.

Whatever points of difference might arise in the discussion there were two upon which all would agree—that there was nothing in their work which anæsthetists had any wish to conceal, and that the present discussion was not prompted in the slightest degree by antagonism or resentment towards coroners, either individually or collectively. Its object was to invite expressions of opinion as to whether the present interpretation of the Coroners Act in reference to anæsthetic deaths is the best possible for the community at large; and if not, how it can be improved.

Deaths under Anæsthesia and Deaths from Surgical Complications.

Dr. Chaldecott proceeded to contrast the procedure after deaths under anæsthetics and after those from,

say, surgical shock. Deaths occurring from purely surgical complications, even after operations of expediency, were not made the subject of coroners' inquests; why should coroners not exercise the same discretion in anæsthetic deaths, when the anæsthetic had been given by a qualified medical man, for a legitimate and natural purpose, and with the consent of the patient? Dr. Chaldecott contended that the fact that it is not the practice of coroners to regard surgical fatalities as violent or unnatural, proved that they have the power, if they think proper, to treat anæsthetic deaths in the same way. As to the advantages which the present system conferred upon the public, he could think of one only—that when the relatives or friends were dissatisfied a public inquiry cleared things up. He agreed that this was useful, and held that it should be applied not only to anæsthetic deaths, but to all deaths occurring under medical treatment where relatives thought they had cause for complaint, or when from information received the coroner suspected negligence, carelessness, or irregularity of any kind. Dr. Chaldecott had the impression, however, that relatives were almost invariably satisfied that everything possible had been done, and that a public and formal inquest was usually as distasteful to them as to medical men.

Disadvantages of the Present System.

Of the disadvantages, the most obvious was the terror of anæsthetics which the newspaper reports of these inquests created in the public mind. They were read by thousands of people who did not realise the enormous number of administrations taking place daily, and consequently failed to recognise that the percentage of fatalities is infinitesimal. This apprehension was detrimental in two ways: it greatly increased the patient's nervous and mental strain immediately before operation, and lowered resistance to shock; and, what was even more important, it frequently caused necessary operations to be postponed until the prospects of cure had been seriously impaired. Another ill-effect which reacted upon the patient was the additional strain which these inquests, and the publicity which follows in their train, impose upon the nerve of medical men. This was not entirely negligible even in senior men, but in those men who were on the threshold of their career the effect was much more keenly felt. Dr. Chaldecott instanced the case of a patient admitted in the night to hospital, desperately ill with advanced intestinal obstruction. The anæsthetist on emergency duty (probably a comparatively young man) was called upon to administer an anæsthetic for an operation which was at best a forlorn hope. It was quite possible that several such cases might occur within a few days. Suppose the first case died on the table, was it likely to steady the young anæsthetist's nerves when a crisis arose in his next serious case, if it flashed across his mind that for the second time in a week he might have to attend before the coroner to justify his administration? Could it be to the patient's advantage that the anæsthetist should have to bear this additional and unnecessary strain? There could be only one answer to that question, and this argument would apply with redoubled force if the surgeon were also called upon to attend the inquest. In a case of this kind the glaring anomaly was that if the surgeon and anæsthetist had allowed the patient to die without attempting to save him by operation, the death would have been regarded as natural, whereas because in spite of a strenuous effort he had died on the table, his death would have been suspected as being violent and unnatural, and a public inquest held. Dr. Chaldecott had once seen a pulmonary embolism occur in the middle of an operation, which was nevertheless completed; the patient was put back to bed, recovered consciousness, and died three hours later. The cause of death was certified as (1) strangulated umbilical hernia (three days); (2) operation; (3) pulmonary embolism (three hours). The certificate was accepted as one of natural death and no inquest was held.

Had the patient not recovered consciousness death would in all probability have been attributed to the anæsthetic. The operation killed the patient, so death was *natural*; had the anæsthetic—which was an essential part of the operation—killed the patient, her death would have been *unnatural*, and a public inquiry would have been held. It might be argued that these were extreme cases, and that a death during an operation of expediency, in which a fatality had been absolutely unexpected, was in a different category. Dr. Chaldecott thought that unless there was *prima facie* evidence of negligence or carelessness there was no reason to suspect this kind of death of being either violent or unnatural. It was difficult to understand why such death should be regarded as more unnatural than any kind of sudden death which occurred while the patient was under medical or surgical treatment.

In view of the fact that one branch only of medicine and surgery was singled out in this way for suspicion, it was not surprising that the administration of anæsthetics was the least popular of a doctor's duties. In hospitals the dread of possible trouble certainly had the effect of making house officers very shy of this work, and discouraged them from availing themselves of all the opportunities for anæsthetic experience which their office should afford them. This result was, of course, an additional disadvantage to the public.

Illustrative Cases.

Dr. Chaldecott quoted two anæsthetic deaths which occurred recently as illustrations of the harm inquests could do on the one hand, and of their uses on the other. The first was that of an aged man who died after he had been under the anæsthetic for some time. The autopsy disclosed fatty degeneration of the heart, which made it obvious that he might have died suddenly at any time; in this class of case an autopsy without a public inquest would have been quite sufficient, and would have done no harm, whereas a result of the inquest was a sensational report in the evening press, with the alarmist heading of "OPERATION RISK: HEART DISEASE THAT ESCAPES DIAGNOSIS." It would be difficult to imagine anything more mischievous and misleading. The impression which this would convey to many people was that a hitherto unrecognised danger had been discovered, instead of a common condition frequently the cause of sudden death, but one from which the patient may suffer without giving the administrator the slightest anxiety. The second case was one in which the patient lost her life through the transposition of the afferent and efferent tubes of a Junker's chloroform apparatus. This was an example of an accidental death in which an inquest was clearly called for, in order to ascertain whether or not the mistake was due to any negligence or carelessness.

Deaths Attributed to Delayed Poisoning by Anæsthetics.

These objections could be applied with even greater force to the holding of public inquests upon deaths which occurred several days after operation, such deaths being attributed to the indirect or delayed effect of the anæsthetic. In holding inquests upon this class of case the greatest inconsistency was shown. A large number of fatal complications might follow operations. What good purpose was served by an inquest on a case of delayed chloroform poisoning, which would not be equally well served by one on a death from shock, from secondary hæmorrhage, from pulmonary embolism, or for the matter of that, from ether bronchitis? In all these instances death would have occurred from complications which, taken together, represent an all-round percentage of mortality which is exceedingly low. Why should one complication be picked out and suspected of being violent or unnatural? It was common knowledge that the mortality of surgical operations was growing less and less. Would progress in surgical work have been so steady and continuous if every surgical death had been made the subject of public inquiry, and the surgeon had been called upon to explain and to justify his technique to a lay tribunal?

Surely the effect of such a custom would have tended to cramp surgical progress at every step. If the comparative safety of two methods of a particular operation, instead of being settled as they were now by surgeons comparing each other's results, were thrashed out in a coroner's court, would such a farce be in the public interest? Dr. Chaldecott argued that the selection of the anæsthetic in any particular case was a fair analogy. An inquiry addressed to anæsthetists as to the most suitable anæsthetic and method of administration for a particular case would produce various answers, all of which would be good; all would, at any rate, represent the studied judgment of an expert. At a coroner's inquest a complicated matter of this sort had to be settled as right or wrong by a single question and answer.

The Choice of an Anæsthetic.

For one who had never seen the patient during life to suggest to an anæsthetist in public, after a fatality, that he gave the wrong drug, was not only unjust but futile. The impressions conveyed to the lay mind by public discussions on the relative safety of chloroform and ether were almost invariably misleading, and Dr. Chaldecott suggested that such points were outside the functions of a coroner's court. These discussions, from a medical point of view, could do no good, and from a medico-legal point of view—the only point of view relevant at an inquest—could have no bearing upon the verdict. The growing popularity of ether in this country was in the opinion of most anæsthetists much to be commended, but anything resembling an official lay condemnation of chloroform and its consequent rejection in suitable cases would be calamitous. This critical attitude towards chloroform on the part of some coroners was already beginning to cramp the teaching of chloroform administration in the hospitals. An unqualified expression of opinion in court that ether is safe and chloroform dangerous must be quite inaccurate. It was known that in some cases, with some patients, and in the hands of some administrators, the position might be exactly the opposite. The outstanding fact remained that the best judge of the safest method on any particular occasion was the man who had to take the responsibility of the administration. In every one of these inquests the anæsthetist appeared to be on his trial, and was sometimes called upon to explain complicated technical points to a tribunal whose knowledge of the subject was negligible. This was a most unnecessary and unfair position to place him in.

An Alternative Proposal.

There could be only two reasons for holding these inquiries, firstly, to find out if anyone was to be blamed for the death, and secondly, to elicit some clinical fact which might be of assistance in diminishing anæsthetic mortality in the future. The first was really the prime function of a coroner's court, but in these cases it was unnecessary to exercise it unless there was ground for suspicion. For the second a coroner's court was the worst possible form of tribunal, and a substitute should be found. The medical profession would eagerly welcome any form of inquiry likely to be of practical use. Such inquiry should be official but private; it should be carried out by a committee, some members of which should be experts, who know enough of the subject to view the administration of anæsthetics from the point of view of the requirements of modern surgery. Such a committee should be appointed by the Ministry of Health, and should have the power to call for all records of the fatal cases—clinical, operative, and post mortem. In this way every point which might be useful in the future could be elicited and recorded without the danger of producing false alarms through indiscreet newspaper reports; and at the end of each year the committee could issue a report to the General Medical Council, which could be published in the medical press, containing any suggestions which they thought might prove valuable. If this procedure were adopted it would relieve coroners of holding inquests upon any of these fatalities, except those which present the special

features to which allusion had been made. The interests of the public would be better safeguarded, not only because the inquiries were being held by a tribunal competent to deal with the technical side of the question, but also by the absence of publicity. Dr. Chaldecott felt confident that the public would be quick to grasp the fact that their interests in this matter were inextricably interwoven with those of the profession; that anything which tends to cramp teaching, and to foster in the minds of young practitioners a fear of acquiring anæsthetic experience, must be a public danger rather than a safeguard; and that they would gladly support an effort to reform a system of inquiry which, however well adapted for murders, suicides, and ordinary accidents, was quite unsuitable for the majority of deaths in connexion with operations.

Immediate and Ultimate Mortality.

The PRESIDENT said that Dr. Chaldecott had taken as his main theme the safety of the public. There were probably many ways in which this could be better served than by the present system. The menace of a coroner's inquest was to the detriment of the public, especially as regards choice of anæsthetic. A young anæsthetist must be biased to some extent by the dread of publicity if things went wrong. Moreover, the anæsthetic that ensured that the patient would be got off the table in safety was not necessarily the best one for the patient. For example, in 100 cases of strangulated hernia in patients with bronchitis there would be a much higher ultimate mortality with ether than with other anæsthetics, though the immediate mortality might be lower. The patient was thus often deprived of the best method by this dread of a possible inquest.

Two Unusual Cases.

Dr. I. HAMILTON BEATTIE said that he had been asked to bring forward two unusual cases of interest in connexion with the subject under discussion. The first was that of a ruptured ectopic, practically moribund when admitted. Gas and oxygen were administered with Boyle's apparatus. On opening the peritoneum the patient was noticed to collapse. The usual restoratives were given, and heart massage was attempted, with no favourable effects. Adrenalin was then injected directly into the heart muscle. The patient rallied, and was taken to bed alive. She then developed Jacksonian epilepsy and died within two hours. The coroner did not call for an inquest. This was a matter of regret to the anæsthetist, as a thorough investigation of this case might have been of great scientific importance. The second case was that of a hopelessly incurable carcinoma of the lower jaw. The operation was undertaken with the object of making the patient more comfortable and of avoiding imminent rupture of the carotid artery. Colonic oil ether was the method of anæsthesia chosen. Three hours after leaving the theatre the patient died in bed without recovering consciousness. A post-mortem was ordered. The finding was that the primary cause of death was ether. This was, strictly speaking, correct, but was perhaps hardly fair to the anæsthetist, the circumstances of the case being considered.

Hospital Committee of Surgeon, Anæsthetist, and Pathologist.

Dr. Z. MENNELL pointed out that there are two classes of death to be considered: the first, due directly to the anæsthetic, the second due to the disease for which the operation is performed. The speaker had had to attend certain inquests recently in at least two of which the anæsthetist need hardly have been called upon to appear. In the first case the patient died under anæsthesia, a thoracic aneurysm having been ruptured by the surgeon's finger. In the second the surgeon, in operating on a cerebellar tumour, had incised the fourth ventricle. It was manifestly unfair to summon the anæsthetist to these inquests, unless the surgeon was called as well. At St. Thomas's Hospital there was a standing committee composed of a surgeon, a pathologist, and an anæsthetist, for the purpose of investigating deaths under anæsthesia. A form was

drawn up for the anæsthetist to fill and to forward to the committee, who discussed the case from all aspects. It was astonishing in how many cases deaths had nothing to do with the anæsthetic, being due to disease, to undue prolongation of the operation, or to some surgical catastrophe. In one or two cases deaths had undoubtedly been due to the anæsthetic. In these cases the inquiry proves unsatisfactory, because the corpse had been removed to the mortuary. Small portions of the organs were, however, sometimes obtainable, and it was extraordinary how valuable was the information then acquired. It was imperative that house surgeons, casualty officers, and resident anæsthetists must not be made even more nervous than they were at present. In answer to a question, Dr. Mennell said that the findings of the Medical Committee were sent to the Medical Committee of the hospital.

The Coroner's Point of View.

Dr. EDWIN SMITH, speaking as a London coroner who had also had experience as a general practitioner, said that a death from an anæsthetic was a death from a poison, and was not comparable with death from surgical shock. Inquests often had a happy result in appeasing relatives who had previously been dissatisfied. He considered Dr. Chaldecott's paper very logical and fair.

Dr. H. R. OSWALD agreed that of the vast number of cases anæsthetised the number of deaths formed an infinitesimal fraction, showing the care taken by anæsthetists. Coroners were by no means anxious to hold inquests on these cases, but were bound to do so on their interpretation of the law that such deaths are unnatural. The Coroners Act of 1887 clearly applied to these cases. On the whole, these inquiries were advantageous to the profession in general and to the anæsthetist in particular. People would be suspicious of an inquiry held in camera. He did not think it was necessarily an advantage that the case should be reported in the press; coroners had, however, no jurisdiction in this matter. To his own knowledge, in many cases friends of the patient had been convinced only after an inquest that the death was due to a cause not connected with the anæsthetic. In 1922, 925 inquests were held in his court, 25 being on deaths under anæsthesia. In not one of these cases was it found that the anæsthetist was to blame, but he might have been. It was true that coroners' juries were often composed of unskilled and half-educated people, and this fact added to their difficulties. He agreed that the anæsthetist and the surgeon, working together, were the best judges in the choice of anæsthetic. He objected to private inquiries because the vast common-sense of the majority of the people formed on the whole a very useful safeguard against injustice. Lastly, he emphasised again that according to the present state of the law coroners had no option, but were bound to demand inquests on these cases.

Certain Inconsistencies.

Dr. J. BLUMFIELD said that the coroners had not cleared away the inconsistencies in the nature of the cases in which they regarded death as unnatural. Was not death from the use of a knife as unnatural as death from the use of a poison? (At this point Dr. OSWALD intimated that a late coroner, Mr. Troutbeck, used to hold inquests on deaths after operation, and this had raised a great storm among surgeons.) Dr. Blumfield, continuing, said that the working of a knife and the infliction of a gas seemed to him comparable. Mr. Troutbeck's action had been unpopular with the profession on the ground that inquests were undesirable as a routine in deaths after operation, and Dr. Blumfield contended that they were also undesirable in deaths under anæsthesia. One point had emerged during the discussion—the complex nature of deaths of this kind. It was often a difficult matter to settle the cause of death, and the coroner's court was not the place where complex scientific problems of this kind could best be solved. The matter could not be adequately threshed out in these courts; and, moreover, according to the present

system, a lot of valuable material was lost. Post-mortem evidence was filed in one place, and clinical records in another. Both were incomplete, and it was difficult for an investigator to follow up the case from the beginning. In Dr. Blomfield's opinion Dr. Chaldecott had made out an unanswerable case for reform, but it was difficult to see exactly how it was to come.

Dr. M. I. FINUCANE asked what death certificate could be made out supposing inquests were not held?

The Medico-legal Aspect.

Sir BERNARD SPILSBURY said that the point of view of anæsthetists and coroners had been voiced, and he proposed to speak from that of a pathologist who had investigated many fatalities under anæsthetics. Anæsthetists seemed to have spoken under some misconception as to the law. A coroner was bound to hold an inquest on receipt of a notice of death occurring during anæsthesia, unless on inquiry he was satisfied that the death was a natural one. It was very difficult to be so satisfied without an inquest, and in London at any rate inquests were held on all anæsthetic cases. The object of an inquest was to find out whether a death was natural or unnatural, and if unnatural to ascertain the circumstances. In Sir Bernard Spilsbury's experience some deaths during anæsthesia were natural; such were the deaths from pulmonary embolism during operation. In these cases thrombosis had occurred, and at any time, before, during, or after an operation, the embolus might become detached, and sudden death ensue from pulmonary embolism. If the death were unnatural the conduct of the surgeon and his assistants, as well as the anæsthetist, came under review. The verdict might be that death had been "accelerated by the anæsthetic," or that death was the result of the surgical measures employed. Examples of the latter class were those of hæmorrhage from a blood-vessel or an aneurysm incised during operation and fatal cases of air embolism. In these cases the surgeon was held to be responsible. There was a class of case in which death could not be dissociated from anæsthesia. The influence of an anæsthetic might vary greatly. If the patient were moribund before the operation was started, the anæsthetic played a very minor part, and in some cases took no part at all. In such cases no great advantage was gained by an inquest. But there were also the deaths during anæsthesia of persons who were not seriously ill, persons in good general health, such as children who died suddenly during removal of tonsils and adenoids, or during the operation of circumcision. In these cases it was essential that a public inquiry should be held in the interests alike of the anæsthetist, the surgeon, the hospital, the relatives, and the general public. Few cases were more distressing to relatives who, after attending an inquest, were often satisfied that everything possible had been done, and that the cause of an unexpected death was cleared up in the coroner's court. If no public inquiry were held the patient's friends might well retain a feeling of suspicion or resentment. An indignant parent might then write to the press giving a perverted or exaggerated account of the circumstances. A special inquiry by a committee, such as was suggested by Dr. Chaldecott, would certainly be helpful from a scientific point of view, but would not replace the public inquiry in this class of case. In the speaker's opinion, the difficulty was not with the coroner's inquiry, but with the publicity which attended it. Inaccurate and misleading reports of inquests were published in certain newspapers, with comments intended to satisfy the craving for excitement of a certain class of reader. Such accounts of inquests in the press were certainly harmful. The coroner might perhaps authorise an accurate report of the case for publication. This was only a suggestion by which the difficulties and dangers at present attending the publication of coroners' inquiries might be met.

Dr. A. W. MATTHEW said that apparently Sir Bernard Spilsbury and certain other speakers were

anxious that coroners' courts should elucidate the cause of death. It was held by some authorities that the business of a coroner was only to see whether or not death was due to negligence. A coroner's court was not a pathological institute, and provided the coroner found no negligence, he was not officially interested in the cause of death. The coroner should thus be careful as to what questions he asked. A carelessly asked question might reflect on the anaesthetist.

Dr. H. P. CRAMPTON suggested a point of view that had not yet been brought out—the importance of the skill and speed of the operating surgeon with reference to the results of the anaesthetic; for example, a severe ruptured ectopic in the hands of an expert and rapid operator might do well, but if the surgeon were not so skilful, the patient and the anaesthetist being the same, a catastrophe might result. It was manifestly impossible for an anaesthetist to stick up for himself at an inquest to the discredit of the surgeon.

Mr. CECIL ROWNTREE said that in cases of spinal anaesthesia not only the anaesthetist, but the surgeon, the house surgeon, and theatre sister were summoned to the coroner's court, so that in these cases the position was even more complicated. If the dread of a possible inquest deterred inexperienced men from giving anaesthetics, it was a good thing.

Dr. H. E. G. BOYLE could not believe that coroners' juries had sufficient intelligence to give a verdict of any value in the question under discussion. They had to be guided entirely by the coroner. If inquiries were held by a scientific committee appointed and paid by the State, a mass of valuable detail would be collected.

Reply.

Dr. CHALDECOTT reiterated his opinion that inquests should certainly be held in all cases when relatives were dissatisfied. The other main point turned on the question, what was the law? If coroners were really bound by law to hold inquests on these cases and had no discretion in the matter, the law should be changed. He had thought that possibly this would not be essential; if a preliminary inquiry were feasible, and as the result of this the coroner was satisfied, the case could be referred to a scientific committee. If the coroner or relatives were dissatisfied, the inquest could be held and all records could then be forwarded to the committee.

GENERAL MEETING OF FELLOWS.

A GENERAL meeting of Fellows was held on April 23rd. Sir WILLIAM HALE-WHITE, the President, being in the chair, when a discussion on the

ETIOLOGY AND TREATMENT OF OSTEO-ARTHRITIS AND RHEUMATOID ARTHRITIS

was opened by Sir ARCHIBALD GARROD. He said that chronic articular disease was an obscure branch of medicine, the gross classification and multiple nomenclature of which were sure signs of ignorance. Osteo-arthritic lesions, erosion of cartilage, eburnation of bone, the formation of osteophytes, &c., developed insidiously in elderly people with a characteristic distribution, quite apart from infective rheumatoid troubles. Probably an underlying predisposing condition was excited by injury or wear or tear. Osteo-arthritic lesions might be produced by prolonged or recurrent inflammatory lesions, as in hæmophilia and in the rare disease of alcaptonuria, where ochronosis and other changes in cartilage were followed by a tendency to osteo-arthritic lesions in later life. As regards rheumatoid arthritis, a name to which he objected, as there was no connexion with true acute rheumatism and cardiac complications were absent, he inquired whether this was a definite disease or a mere residue left after whittling off cases of arthritis due to recognised causes. The clinical picture was definite in the distribution of the lesions, their persistence and the relapses which occurred, yet very similar pictures occurred in dysenteric and gonorrhoeal arthritis with differences only in the course of the disease. The arthritis of psoriasis was a definite form which was

much improved by treatment with arsenic in a case he instanced, only to relapse repeatedly and on each occasion in an aggravated form. The part played by septic foci—in the teeth or elsewhere—was still obscure; while such foci were undoubtedly the cause of many cases, no focus could be found in others even upon the most careful scrutiny. Evidence in favour of the separate entity of rheumatoid as opposed to osteo-arthritis lay in the peri-articular nature of the lesions, and the contracture deformities. Treatment had advanced very little. Infection foci should be attacked, and in this connexion he inquired how much good was to be expected from vaccine treatment alone. Drugs generally failed to achieve much; he considered guaiacol carbonate administered over a long period to be the most useful. Of protein shock he had little experience, and he wondered whether some of the dramatic cures obtained by it were lasting. Spa treatment was most useful when the acute stage was subsiding. The aim of treatment should be to kill off the infection before permanent damage had been done to the joints. In osteo-arthritis drugs were of very little use. Baths, electrical treatment, and adaptation of the habits to the disability, with treatment directed to the relief of pain, were all that could be done for the patient.

Rheumatoid Arthritis Not an Infection.

Dr. M. CASSIDY said that he considered that the importance of infective conditions in the ætiology of these diseases, particularly in the case of rheumatoid arthritis, had been much over-rated. He regarded the latter as a clinical entity, a somewhat uncommon disease, and one almost entirely confined to women. In his experience, it was uncommon to find a septic focus. Some years ago Dr. Cassidy and Mr. Percy Sargent had examined microscopically and bacteriologically small fragments of synovial membrane removed during life from rheumatoid joints. In only one of the 15 cases examined was an organism (a streptococcus) recovered. The speaker considered this positive result was due to a skin infection. He was sceptical as to whether rheumatoid arthritis was in any way infective. It might run a steadily progressive course for 30 or even 50 years with no complication other than fibrositis. Pleurisy, pericarditis, and endocarditis occurred rarely, and then probably accidentally. Rheumatoid arthritis tended to be hereditary; patients' relatives appeared to be specially liable to fibrositis. Dr. Cassidy's remarks referred only to genuine rheumatoid arthritis. Never, in his experience, was the relentless course of the disease arrested by extraction of teeth or a course of inoculation. There was, however, a large group of cases of chronic infective arthritis, which might resemble closely the former disease, in which infective focus was readily demonstrated, and when it was removed gratifying therapeutical results usually resulted. There were causes of osteo-arthritis other than infection. A joint which has been the site of repeated attacks of acute gout might eventually become osteo-arthritic. He had showed a year ago, at the Clinical Section, two sisters who exhibited numerous subcutaneous nodules above the course of the extensor tendons of the hands and feet. Some of these nodules, excised by Mr. Max Page, were found to contain abundance of uric acid. Both these sisters were now developing osteo-arthritic changes in the knees and other joints. And although neither case has suffered from an attack of acute gout, it was difficult to believe that this joint condition was not of gouty origin. The acute onset of osteo-arthritis of the knees, with or without Heberden's nodes in the fingers in women at the time of the climacteric, was familiar to all. Surely this condition must be metabolic rather than infective. He was fully alive to the dangers of chronic septic intoxications; perhaps the majority of all cases of chronic polyarthritides were infective, but he submitted there were other common, important, and easily recognised types, and he considered it retrograde to lump all these diseases together under the horrible title "non-

specific infective arthritis," as had been done in a recent (and in other respects admirable) text-book of medicine.

Distinction Between Osteo- and Rheumatoid Arthritis.

Dr. F. J. POYNTON said that it was over 20 years since he and Dr. A. Paine had demonstrated the experimental production of osteo-arthritis with a streptococcus, and rather later they showed experimentally that (1) the same infection in varying virulence might produce various types of arthritis, (2) that a monarticular arthritis might result from a blood infection. The various changes in the joints he looked upon as of great practical importance, but as secondary incidents connected with the prime cause and not in themselves specific. The problem of rheumatoid arthritis was unfortunately much more complex. It was in his opinion their lack of knowledge of the life-history of infection in the human tissues that was now an obstacle in the treatment of disease.

Treatment.—Dr. Poynton said that vaccines were indicated when a pure or almost pure culture could be obtained from an obvious local focus. Protein shock he abandoned before the war, but the recent paper of Perkins and Bruce required consideration. "Bowel infection" was the most popular theory at the moment; he regarded the colitis as an effect rather than cause of the disease in many cases, and was cautious in advising treatment by colonic douches. He had employed collosol iodine and sulphur, but preferred the syrup of the iodide of iron. Organotherapy was helpful in cases at the menopause and those with vaso-motor spasm. He curtailed carbohydrates, particularly for stout ladies with weak knees. Radiant heat he avoided in cases that had more pain in the summer. Ionisation had certainly seemed effective in cases of hypertrophic arthritis, though he was aware of the doubts expressed as to its efficacy. He was impressed with the frequency of injury as a factor in osteo-arthritis of the hip-joint. Treatment on the lines of tuberculous hip disease seemed the most reasonable plan in the early stages, but few patients would agree to this. In that case if they could afford it he thought the partial rest of spa treatment was useful in the early stage if the hip-joint was not worried.

Achlorhydria.

Dr. A. F. HURST dealt first with the importance of focal infection with special reference to secondary intestinal infection resulting from "achlorhydria." In those cases in which the disease continued to advance after all oral, pharyngeal, and nasal septic foci had been eradicated, the intestines had generally become secondarily infected, and the comparative frequency of achlorhydria in rheumatoid arthritis was noteworthy. Faber and Kahlmeister had found it present in about 36 per cent. of cases. It was present in about 4 per cent. of normal people. He had found it present three times in 14 consecutive private cases; definite hypochlorhydria present in four, and a low normal curve in three of the remaining 11 cases. Individuals with insufficient gastric secretion readily became infected, and this secondary infection required treatment by the administration of large doses of dilute hydrochloric acid, sour milk, and a vaccine prepared from any pathogenic organisms isolated from the duodenum by means of an Einhorn tube.

The Importance of Rest.—During the active stage of the disease tender joints should be rested and fixed in a good position to prevent deformity. Rest should be continued for weeks or months, and so save the patient from being ultimately crippled or bedridden.

The Psychological Factor.—The active disease died out sooner or later. When no pain or tenderness was present, rest was no longer required. Explanatory persuasion and re-education, with the aid of manipulation and massage, which were, however, of secondary importance, often resulted in remarkable cures. Only 18 months ago Dr. Hurst had shown, before the Clinical Section, a man, who had been completely bedridden, with his knees fixed in a flexed position

and unable to use his deformed hands for three and a half years, when he came under his (Dr. Hurst's) observation. As a result of the treatment mentioned there was no limitation of movement of his knees, which looked normal. He could walk miles, and, although his hands still showed the typical deformities, he could use them.

Dr. S. P. STRANGEWAYS exhibited pathological specimens from which he showed there were at least six types of arthritis at present included under the name rheumatoid arthritis. These he provisionally described as (1) capsular, (2) dry, (3) adhesive, (4) rarefying, (5) villous, (6) defective, and he gave detailed descriptions of the pathological appearances of each type.

Dr. J. A. GLOVER said that the Ministry of Health was making a statistical study of rheumatic diseases in which were included rheumatoid and osteo-arthritis. Regional medical officers and a number of insurance practitioners were collaborating in this work. The definition of rheumatoid arthritis adopted was "usually with an acute initial attack of pyrexia; many smaller joints affected; spindle-shaped joints; changes mostly periarticular, often symmetrical; nutrition usually bad; patients usually females. The definition of osteo-arthritis (including *malum coxae senilis*) was 'gradual onset, usually afebrile; fewer and larger joints affected; grating, lipping, eburnation, osteophytes; lesions often asymmetrical. Patient usually well nourished.'" A number of tables and diagrams were then shown from which the following emerged as salient facts. In males of all ages osteo-arthritis was nearly twice as frequent as rheumatoid arthritis, whereas in females the incidence of the two diseases was about equal. Rheumatoid arthritis was many times more common in females than in males. The incidence of both diseases showed a rapid rise amongst insured persons of both sexes in the higher age-groups (after 45 years of age). Thus, in the case of rheumatoid arthritis, the attack rate per 1000 in females rose from 7.60 in the age-group "45 to 54" to 49.13 in the age-group "over 65." The rise in the attack rate of osteo-arthritis in females was even more striking. In males a similar, but not so rapid, rise in the attack rate of osteo-arthritis was seen in the higher age-groups, but the rise in the case of rheumatoid arthritis was comparatively small. With these were shown also tables illustrating the fact that on the average patients with osteo- or rheumatoid arthritis had good teeth and a clean mouth in only 10 per cent. of cases, whereas 15 to 20 per cent. of controls suffering from other diseases passed this test.

Dr. W. J. MIDELTON was disappointed not to have heard continuous counter-irritation discussed in the treatment of these diseases. He had learned the value of this form of treatment from Latham and had now been practising it for 22 years with considerable success in chronic joint lesions. After multiple acupuncture a diluted croton oil was rubbed into the skin on several occasions. This often produced a severe dermatitis, but a striking improvement in chronic joint lesions was produced and in some cases complete cure. Photographs of cases so treated before and after the treatment were shown.

Dr. G. L. K. PRINGLE disliked the term "rheumatoid arthritis," which was apt to be used as a "scrap heap" for undiagnosed articular affections; further, patients regarded it as an incurable disease. He thought that four definite types were included under the heading: (1) Infective. (2) Chronic fibrous rheumatism in which the cartilages and bones were unaffected. This form sometimes followed gonorrhoeal rheumatism, but some cases might be of gastrointestinal origin. (3) An atrophic form often with nerve lesions, central or peripheral. (4) A villous form attacking the larger joints in middle life. For such patients it was advisable to cut down carbohydrates in order to reduce weight.

Dr. H. LYDIARD WILSON spoke of a form of bath employing moist heat which he had found useful in these cases.

Reviews and Notices of Books.

HELIO THERAPY.

By A. ROLLIER, M.D., Medical Director of the Institutions for Heliotherapy, Leysin. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 288. 25s.

THE publication of Dr. Rollier's book in English comes at an opportune moment, as the widespread desire for further knowledge of the action of sunlight in health and disease has recently found expression in the appointment of a committee of investigation in this country. Those already acquainted with Dr. Rollier's writings will find that the volume now under review is not a mere translation of "*La Cure de Soleil*," but a new work containing much hitherto unpublished matter. The book is strengthened by the inclusion of chapters written by three of Dr. Rollier's assistants: Drs. Rosselet, Schmid, and Amstad, each of whom has special knowledge of some subject closely connected with heliotherapy.

Dr. A. Rosselet, who is physicist as well as physician, contributes a chapter on the Scientific Basis of Heliotherapy, in which he deals with a mass of heterogeneous and conflicting knowledge in the lucid manner of one who thoroughly understands his subject. A perusal of his article leads, nevertheless, to the conclusion that although the physical and meteorological study of light may be well advanced our knowledge of the mode of action of the sun-bath is still in its infancy. It is noteworthy that Dr. Rosselet now lays considerably less stress on the value of the ultra-violet portion of the spectrum than was the case in his earlier publications. Largely on account of the work of Sonne, this interesting group of radiations now appears to be eclipsed in importance by the luminous rays, which are not only able to penetrate the skin more easily than any other solar rays, but have also the curious property of raising the temperature of the subcutaneous tissues to a level several degrees higher than that of the skin, without any rise in the temperature of the body as a whole.

The greater part of the book is a record of Dr. Rollier's own clinical experience, dealing with the therapeutic action of the sun-bath, and the technique of heliotherapy as applied to the whole body and its several parts. This section is accompanied by notes of numerous cases, many of them illustrated by photographs, which afford convincing evidence of the value of modern conservative methods. Dr. Rollier is careful to point out the dangers of incautious exposure to sunlight, which may lead to serious and even fatal accidents. A focal reaction in a tuberculous lesion is liable to occur even when a distant part of the body alone is exposed to sunlight. This reaction somewhat resembles that caused by the injection of tuberculin, and is proportional to the duration of insolation and the amount of body surface exposed; hence the need for careful dosage, especially for those violently reacting cases showing peritoneal or pulmonary lesions.

The technique of the sun-bath in an average uncomplicated case would be as follows. After some days' initial rest in the fresh air sun-treatment is begun by uncovering the feet alone for three exposures of five minutes. The exposures are daily increased in duration and extent until on the fifth day the case will have, at ten-minute intervals, three sun-baths of 25-minutes' duration, uncovering first the feet and then, at five-minute intervals and in the following order, the legs, thighs, abdomen and thorax, the head being always shaded. By this time a fair idea is gained of the patient's tolerance, and if pigmentation be progressing well the exposures are safely lengthened, and reduced in number. The rate of progress of tolerance depends directly upon the rate of pigmentation, which is very variable, erythematous sunburn is never allowed to arise; non-pigmenting types with red hair and fair skin are from the first protected by thin gauze. Eventual success appears

largely to depend upon the successful management of the initial period of adaptation.

Cold, dry air is found to be a very important factor in successful sun-treatment, anything in the nature of a Turkish bath being dangerously relaxing; for this reason early morning exposures are advised in summer weather even in the high Alps, and of course are far more necessary in a humid climate such as that of our islands. Cases of lupus, for which the midday ultra-violet light is required, are given several short exposures toward noon in addition to the early morning bath. Dr. Rollier finds that by discontinuing the use of occlusive plasters in favour of light appliances involving a minimum of interference with the sun's rays, he has favoured the return of articular function and has avoided the muscular atrophy so commonly seen. A good development of the dorsal muscles is considered to be of great value in preventing the recurrence of spinal lesions. With this in mind the prone position is used for cases of spinal caries other than cervical and high dorsal; by this exposure of the back to the sun the dorsal muscles and skin are stimulated, atrophy and soreness are avoided, compensatory lordosis increased, and visible kyphosis diminished, but the adoption of this position is never advised until the focus of disease is both clinically and radiographically quiescent. Cold abscesses are not aspirated unless advancing in spite of treatment or threatening to open spontaneously, under which conditions only enough pus is withdrawn to relieve tension. Irritant injections have been given up, as reaspiration is thought to be more frequently necessary after their use. Contra-indications to sun-treatment are few, but they include hectic fever, renal insufficiency, and severe cardiovascular disease. Amyloid disease is, however, greatly benefited in a number of cases.

Routine operative treatment has been entirely abandoned, except for unilateral renal disease and for cases showing large inabsorbable sequestra, while in closed joint lesions practically the only excision that is ever advised is that of the knee-joint in rare adult cases where the disease is very torpid and ankylosis inevitable.

In a chapter devoted to the subject of Work Cure full stress is laid on the depressing and demoralising effects of inaction. Dr. Rollier encourages his bed-ridden patients to do light handicrafts, and his convalescents in more active pursuits. His views on the dangers of recurrence when a convalescent returns to the same bad conditions of life that produced the disease are one with those of British authorities, and, like them, he has found a partial solution of the difficulty in the working colony. He emphasises the value of a definitely anti-tuberculous environment for children who for various reasons are considered to be particularly liable to contract tuberculosis. The School in the Sun, near Leysin, is designed to provide such an environment for weakly children; health is here the primary consideration, and work and play alike are out of doors in open country, while clothes are reduced to sea-bathing proportions.

Dr. H. J. Schmid's article on the Radiographic Diagnosis of Osteo-articular Tuberculosis and Control of the Clinical Results of Heliotherapy contains reproductions of many excellent X ray positives. Dr. E. Amstad's chapter treats of the Radio- and Phototherapeutic Adjuvants of Heliotherapy. He has found no serious contra-indication to the simultaneous application of sun and X rays, provided that pigmentation be already present. He is of opinion that intense irradiation of active lesions always involves the danger of starting military tuberculosis, and is therefore unjustifiable. Discussing the treatment of tuberculous adenitis, he considers that it normally reacts but slowly to X radiation, and that those cases which show rapid regression after two or three exposures are of doubtful origin. Apart from adenitis he gains his best results with small superficial joints affected with the synovial type of tubercle; his third successful group includes the chronic fibrous adhesive type of peritonitis. Dr. Amstad's concluding chapter

deals with heliotherapeutic treatment in non-tuberculous diseases, such as rickets, general debility and anaemia, syphilis, open wounds, and lymphadenoma. Most cases of this last disease come under his care diagnosed as tuberculous adenitis, and in the majority a favourable, though temporary effect is observed, the general health improving and the disease appearing to be arrested.

Dr. Rollier's book is a magnificent object-lesson of what can be done by the intelligent coöperation of medicine and sunshine, and the principles which he has worked out have world-wide application.

HANDBOOK OF SANITARY LAW.

By B. BURNETT HAM, M.D., D.P.H. Ninth edition, by HENRY R. KENWOOD, C.M.G., M.B., F.R.S. Edin., D.P.H., Chadwick Professor of Hygiene and Public Health, &c. London: H. K. Lewis and Co., Ltd. 1923. Pp. xxviii.-244. 5s.

THIS useful little manual contains the concentrated essence of sanitary law for the use of medical students who are taking the diploma of public health. It should serve its purpose well. To post up in a publication of this kind the latest changes of the legal kaleidoscope must, however, be a heart-breaking task. Several pages, for example, are devoted to the Sale of Food Order, 1921, which has now only a limited operation. Part II. of the Order has now been replaced by the Sale of Tea Act, 1922; the bacon and ham provisions of Part III. are dead; so are Parts IV. and V., which dealt with jam and fats. These changes occurred early in September, 1922, but were apparently too recent for inclusion. Again, almost all the references in this handbook to statutes about education and the employment of children require correction since the operation (on Oct. 1st, 1922) of the big repealing and consolidating Act of 1921. No better illustration of the intricacy of our sanitary law, to which we refer in a leading article this week, could be furnished. The clamant need of applying the consolidating process to our public health legislation has frequently been emphasised of late. We observe that the preface to the original edition of this handbook pointed in the same direction 24 years ago.

TUBERCULOSIS.

The Cure of Tuberculosis and Its Mixed Infections by Cutaneous Inoculation. (Die Heilung der Tuberkulose und ihrer Mischinfektionen durch Kutanimpfung.) By Sanitätsrat Dr. Med. W. PONNDORF. Leipzig: F. C. W. Vogel. 1923. Pp. 189. 6s.

THE treatment advocated by the author is the inoculation of vaccines into scarifications on the outer aspect of the arm. He uses two vaccines. "A" is for pure tuberculosis, and "B," which consists of the constituents of "A" plus the endotoxins of streptococci, staphylococci, pneumococci, and influenza bacilli, is for tuberculous mixed infections. By "tuberculous mixed infections" the author means almost every infectious disease to which man is prone. Although he has given more than 50,000 inoculations in the course of more than ten years, he has not once seen sepsis supervene, and he has only thrice observed anaphylactic shock follow the inoculation of tuberculin. The foundation of his system is the hypothesis that the skin is capable of reacting to the local application of toxins with various immunising responses. To prove his case Dr. Ponndorf does not stoop to the use of statistics; he had not time to prepare a statistical analysis of all his cases. And to make good the deficiency—if it be a deficiency—he has filled his book with reports of a great number of illustrative cases. The most remarkable feature of this collection is its polymorphism. It contains all, or nearly all, the pure manifestations of tuberculosis. There follows an almost infinite variety of diseases all responding to the author's

treatment in a manner delightfully simple and uniform. Only when he discusses pulmonary tuberculosis in the last stage does his optimism seem to flag, and even here he has been able to prolong life and mitigate symptoms. The work of Prof. Sahli and others suggests that tuberculin given through the skin may have a definitely beneficial effect, and Dr. Ponndorf may be on the right track. But there is an atmosphere of the Arabian Nights in his book which is apt to dazzle the reader.

JOURNALS.

JOURNAL OF LARYNGOLOGY AND OTOTOLOGY. January and February, 1923.—The January number opens with a summary by Dr. Henry Hall Forbes, of New York, on the present status of radium in laryngeal and cesophageal cancer in the United States. The impression given is that a certain number of cases can be definitely improved, that in a few a disappearance of the growth has resulted, and that in the opinion of some observers pre-operative radiation is of great value. The method most in favour for the treatment of laryngeal cases is to bury needles or small capsules containing emanation. Useful technical details are given.—Sir William Milligan contributes an article on the diagnosis of septic sinus thrombosis. The temperature record is one of the most important and reliable of diagnostic signs; an almost continuous, or at least two-hourly, record should be kept. Frequent oscillations of from 1° to 3° are quite common in commencing thrombosis, whereas sudden oscillations of more than 1½° are unusual in uncomplicated mastoiditis. Rigors only occur in about half the cases, and their absence should by no means negative exploration. A feeling of chilliness, with cold hands and feet, is an important symptom. Slight engorgement of the retinal veins is a valuable sign, which can only be estimated by daily examination. A high degree of leucocytosis is suggestive of pus, but by no means necessarily of pus in the sinus. In very rare cases septic thrombosis may occur when there has been but a fleeting tympanic suppuration, and after the membrana tympani has already healed.—Major W. S. Patton gives an account of the identification of the diptera which cause naso-pharyngeal and aural myiasis in man, which should be of use to practitioners within the tropics.—Sir StClair Thomson provides a "critical review" on aperioidic spasmodic rhinitis, based on a Paris thesis by Dr. Georges Dhers on the treatment of this condition by hypodermic injection of the patient's own serum.

The February number opens with some further remarks by Dr. Irwin Moore on angiomas of the larynx, supplemental to a review of the subject which appeared in the *Journal of Laryngology* last year. He concludes that the intra-laryngeal removal of sessile angiomas is a dangerous procedure owing to the risk of secondary hæmorrhage.—Dr. T. Ritchie Rodger discusses the pathological effects of excessive sounds on the cochlear apparatus. From an examination of 48 boiler-makers in Leith he found that, in lads who alleged that they were not at all deaf, there was always some diminution of hearing for forks of 419 and 512 vibrations per second, corresponding to the pitch of the noises predominant in the shops. In men who had been at the work from 10 to 30 years there was some depreciation all along the scale, but more marked for the medium forks; while in very advanced cases the depreciation was uniform. He believes that these findings, together with the results of experiments on guinea-pigs exposed to continuous sounds, give support to Helmholtz's resonance theory of audition.—Mr. Francis Muecke reports two cases of temporo-sphenoidal abscess, with recovery; and Dr. F. G. Wrigley a case which died with symptoms of peritonitis on the third day after the abscess was opened.—Mr. Herbert Tilley describes two fatal cases of osteomyelitis of the frontal bone, both of which occurred after operation on the maxillary antrum, and in both of which the frontal and ethmoid sinuses were previously diseased.

THE LANCET.

LONDON: SATURDAY, APRIL 28, 1923.

THE NEED OF A NEW PUBLIC HEALTH CODE.

IN his Chadwick Lecture, which we printed in THE LANCET of April 14th, Dr. CHARLES PORTER commented on the number and complexity of the Acts which comprise the public health code of this country. It is now just three-quarters of a century since the first Act was passed "to promote the Public Health" of England. That piece of pioneer legislation was gradually entangled in a network of amendments and extensions as the national health conscience was quickened. The result was such confusion that at length, in 1875, the mass of overlapping enactments was reduced into one symmetrical Act consolidating all the provisions applicable to England and Wales with the exception of the metropolis. This was a notable step, but since that date we have been content to mark time. The law of public health is now to be found primarily in the half dozen measures collectively known as the Public Health Acts 1875 to 1907, and secondarily in some 30 others ranging from the Rivers Pollution Act of 1876 to the Venereal Disease Act of 1917. To this catalogue we must add not only the special health legislation for London, but also the wide range of local Acts which, as we have pointed out on previous occasions, gradually advance the standard of hygiene in every part of the country until the improvements which all localities are anxious to secure are ripe for incorporation in an Act of universal application. Nor ought we to ignore allied subjects such as housing, mental deficiency, maternity and infant life protection. Pausing at this point and looking no further, we are faced with an immense congeries of statutes, successively amending, repealing, applying, and extending one another, a chaos of piecemeal law-making which calls urgently for that same process of simplification and consolidation which last took place in 1875. Almost without exception these enactments were passed before our Ministry of Health was constituted in 1919 with its statutory duty to "take all such steps as may be desirable to secure the preparation, effective carrying out, and coördination of measures conducive to the health of the people."

When are these steps going to be taken? Year after year the Select Committee on Local Legislation urges the consolidation of the Public Health Acts. Members of Parliament have lately been pleading for a system of draftsmanship which will produce simple and comprehensive statements of our laws. A Consolidation Bill, as Lord HALDANE has observed, has the special value of focusing its subject and of making a new starting-point for reform and fresh legislation. The process of consolidation has frequently been applied with the happiest results. There is nothing particularly formidable about it. Three measures of this kind received attention last year, one of which (dealing with the law of salmon fisheries) is likely to be passed this session. The Parliamentary Counsel's Office usually has several Consolidation Bills on the stocks. Such Bills are, as a rule, referred to a Joint Select Committee of both Houses, which considers the question how far they state the existing law. If the Committee is satisfied, then Parliament

is usually satisfied too. The intricacy of its subject and the length of its clauses are no obstacle to the passage of a Bill through Parliament; otherwise Lord BIRKENHEAD's colossal Law of Property Act would not have been dealt with so comprehensively by a somewhat uncomprehending legislature. So technical a topic as the law of trusts in Scotland was condensed two years ago by a band of experts from a score of old Acts into one complete, orderly, and accessible whole as valuable to lawyers as it was convenient to Scottish citizens. It is true that public health law consolidation does offer something of a problem in the selection of the matters to be included. It might be hard to draw the line between Public Health Acts which deal with housing and Housing Acts which raise points of hygiene. But the difficulty is no greater than that successfully surmounted in the consolidating Education Act of 1921 which, in substituting one new Act for 25 old ones, elected to include central and local authorities, teachers and teaching, medical inspection, the duties of parents, and the employment of children, while excluding the law of industrial schools and educational charities. Parliament at any rate made no difficulty about passing either of these Acts; on the contrary, it welcomed them. Why, then, does the law of public health wait so long for simplification?

In asking this question earlier in the present year we mentioned certain stumbling-blocks. Parliamentary time is absorbed by partisan measures. Consolidation proposals do not dominate general elections. Administrators and text-book writers have a sentimental love of the technical complications wherein their apprenticeship was served. A more substantial difficulty is the fact that consolidation and amendment do not go easily together. There is little doubt that our public health law wants both of these, though we would sooner have consolidation minus amendment than no consolidation at all. A Bill which merely replaces existing law has always a good chance of being treated as non-controversial; but if the title of the Bill is not only "to consolidate" but "to consolidate and amend" the law, it is an invitation to every Member of Parliament to introduce matters of controversy which may wreck the prospects of success. GLADSTONE, we believe, made it his rule in such a case to introduce two parallel Bills, the one to contain the amendments, the other to comprise the consolidation. As soon as the former was passed it was possible to catch up the amending provisions and incorporate them in the latter. The plan is simple, and if we are all agreed that the time has come to evolve order out of the chaos of our health laws, a beginning can be made forthwith. It would take but very few weeks for the Minister of Health to determine, with the greatest possible measure of common agreement, what amendments are necessary and acceptable. A Bill to give effect to these could be prepared in a few days; indeed, most of its clauses already exist in local Acts. Meanwhile the Bill to consolidate and contain the whole law of public health should be put in hand. We have no reason to suppose that the Ministry is hostile to the course we are suggesting. It is even probable that the materials for a consolidating Bill already repose in some official pigeon-hole. In order to ensure that that repose should not endure for ever, it is desirable that all who are concerned in public health administration should press for early action. There are few objects which a Member of Parliament might with a greater disinterestedness be canvassed to support or which a public body might with better reason pass a resolution to recommend. If all concerned will ask for it,

the request will receive attention. If they remain inarticulate, other measures will naturally be preferred. Consolidations of National Health Insurance and of housing law possess, we understand, a better chance of early success. Such measures are wanted and will be welcome; but we should like some assurance that the older and certainly not less pressing claims of public health legislation will be met within the next twelve months. Not the least advantage of such a consolidation would be the opportunity it would create for a similar consolidation of the departmental regulations concerning public health. These are now as scattered and as inaccessible as the Acts themselves.

TISSUE CULTURE.

WE publish in our present issue the second and third of a series of three lectures by Dr. A. H. DREW on the cultivation of tissues in vitro, and a further paper by the same author containing additional technical details appears in the current number of the *British Journal of Experimental Pathology*. Originally used by ROSS HARRISON in the study of nerve cells, this technique was adopted by CARREL and his fellow-workers for the study of tissue growth in general, and has been employed extensively both in America and in this country for ten years or more. It was a line of research rich in promise, but it must be confessed that its fruits have hitherto been meagre and far from encouraging. Dr. DREW's lectures, however, describe observations of the first importance, which, it is safe to say, must have a profound influence on this branch of biological science. In this line of research technique is, indeed, everything, and much of Dr. DREW's success is due to the discovery of a saline mixture which, enriched with rat or mouse embryo extract, is capable of replacing the much less convenient plasma medium previously used. In this medium embryo and adult tissues are cultivated with comparative ease. If such cultures are exposed to ultra-violet light for ten minutes the cells are killed; but by protecting certain selected portions of the culture from the rays by a globule of mercury, isolated uninjured cells are preserved from which pure cultures can be obtained. In these cultures the cells grow as undifferentiated sheets of tissue. If now connective tissue is added to the culture, the epithelial cells undergo a characteristic differentiation. In kidney cultures tubules are formed, and in cultures of alveolar mammary tissue acini develop. Although adult tissues can be propagated with ease in the artificial medium, their growth is very slow compared with that of embryonic tissues. If, however, an extract of autolysed cells is added to the medium, adult tissues now grow at the same rate and with the same luxuriance as embryonic tissues. In other words, the phenomenon of wound repair is reproduced in vitro, and it is abundantly demonstrated that repair depends upon chemical excitation, and that theoretical considerations of the interdependence of cells, of variations of internal tissue tension, are unnecessary. Possibly the most significant observation of all is this—a simple non-autolysed extract of the cells of a malignant growth is capable of replacing the autolysed normal cell in this experiment. The malignant cell, in fact, contains already formed those growth-stimulating substances which are only liberated from the normal cell when it undergoes autolysis. With characteristic reticence, Dr. DREW gives no hint of the direction in which these investigations may be expected to lead. But it requires little imagination to appreciate their extreme importance not only in general pathology, but in the more limited field of cancer research.

THE TEACHING OF MIDWIFERY AND ITS DEFECTS.

WE summarise in another column the main points of Dr. JANET CAMPBELL's report to the Minister of Health on the existing arrangements for teaching obstetrics and gynaecology in the medical schools of Great Britain. This report appears most opportunely inasmuch as the authorities of the medical schools must shortly be considering the best methods of utilising the extra year which the General Medical Council have recommended should be added to the curriculum of the medical student. The Council have advised that at least three years should intervene between the date of passing the examination in anatomy and physiology and the final examination in medicine, surgery, and midwifery, and they have further recommended that the professional examination should include clinical and practical tests in midwifery and gynaecology, or that, failing these, the students must produce duly attested records of the clinical work done by them, to be taken into account, if necessary, by the examiners in assessing the results of the examination. It is clear from these recommendations that the Council wish to insist upon a higher standard of teaching than has hitherto obtained in these subjects, and that they intend that the status of the examination should at least be equal to that in medicine and surgery.

The training of the medical student in gynaecology is on the whole adequate; the subject is not an extensive one, and so far as it is possible—obviously not an easy matter to arrange—the student gets a fair amount of instruction in practising the methods of examination which constitute the main difficulty in mastering the practical application of this branch of medicine. In regard to midwifery the position is, however, far otherwise, and this report lays very bare indeed the great inadequacy of the clinical teaching of what is after all to many young practitioners the most important branch of their medical training. The causes for this are plain and have been set out before in our columns. They are mainly three in number: the inadequate number of beds devoted to this subject in the great majority of the teaching hospitals all over the country; the fact that in an extern department, which is often all that is available, proper teaching is almost impossible; and, thirdly—most important of all—the teaching in practical midwifery is mainly in the hands of junior men not of the standing nor with the experience of the teachers engaged in training the student in medicine and surgery. This is to a large extent unavoidable under present conditions. Practical midwifery teaching cannot be done at set hours or to large classes; it must be carried out when the opportunity offers and must be largely individual in character. Bedside teaching on labour cases by senior members of the staff can only be attained when such teachers are resident and always available, a condition of things which, apart from the Rotunda, does not obtain in any lying-in hospital in the British Isles. When we consider the relative importance of the two subjects of midwifery and gynaecology, the proportion of obstetrical beds in the large hospitals with medical schools attached is seen to be too small—quite insufficient for teaching purposes, even if, when provided, they were always available entirely for medical students. Only too often they have to be utilised also for the training of midwives. This state of affairs will not be remedied until the managing committees and the medical and surgical staffs of the hospitals are induced to give up an adequate

number of beds to other subjects by the examining bodies laying down definite regulations dealing with bedside teaching in midwifery, which must be observed if the hospitals desire to remain as medical schools.

Nothing that can be done in an extern department will be sufficient to teach the student properly unless it can be combined with proper training under skilled supervision in lying-in wards. It is very probable, indeed almost certain, that if such regulations were made, the necessary number of beds could be forthcoming at some sacrifice on the part of the other members of the staff in all the larger hospitals with medical schools attached. If the number of beds were adequate, then the provision of proper teaching by members of the senior staff would not be a difficult matter to ensure, as it could be made a condition on appointment. With the additional year which will soon be available for the clinical training of the medical student there should then be no difficulty in providing a sufficient period of training; and just as at the present time he has to spend six months clerking and dressing in the medical and surgical wards, so he could profitably be engaged for six months in the gynæcological, obstetric, and infant welfare departments, which should all be closely associated. Such a period would also afford time for proper training in an ante-natal and post-natal department, the ante-natal work being perhaps the most important of all. The present-day tendency to separate midwifery and gynæcology should be resisted, and the teacher of the former subject should remember, what in many instances he seems inclined to forget, that, as Dr. CAMPBELL points out, it is the skilful, non-operative management of ordinary labour which the general practitioner needs to understand; and this must remain the fundamental teaching of even the most skilled obstetric surgeon. When adequately trained in the lying-in ward and in a position to derive benefit from such work the student can learn a great deal more in the extern maternity district. He can here gain experience in the households of the poor which cannot fail to be of the greatest advantage to him in after years, and further, he can learn to practise the various ways of carrying out antiseptic methods in the patient's own home which will be of service to him in private practice. We look forward with Dr. CAMPBELL to a time not far distant when all practitioners will be thoroughly trained in obstetrics and will possess the knowledge and sympathy needed to bring about a partnership with local authorities and the State. Without such coöperation the most fruitful results of public and voluntary effort for the welfare of mothers and children cannot be obtained.

A HARMFUL PENSIONS BILL.

THE Bill which is being introduced in the House of Commons by Mr. F. O. ROBERTS, Member for West Bromwich, would, if enacted, alter completely the fundamental basis of entitlement and have far-reaching effects on the large body of medical men concerned with pension work. Its effect would be so to amend the War Pensions Acts that any disease or incapacity found in any officer or man at any date after he has left the Service is to be considered attributable to or aggravated by service unless the contrary is proved. The Bill further states that "for the purpose of this provision, acceptance for such service shall be conclusive that at the time of joining such service the officer or man was not suffering from any such disease or incapacity." This Bill is the

practical application of the "fit for service: fit for pension" deduction, and therefore merits all attention. Those who worked on the medical boards of the Ministry of National Service will remember the four grades into which the examinees were grouped: that Grade II. included men subject to partial disabilities, and that Grade III. was composed of men with marked physical disabilities or such evidence of past disease that they were not considered fit to undergo the degree of physical exertion required for Grades I. and II. Excluding the rejected Grade IV. men, 2½ million men were passed as fit for some form of service during the operations of the National Service Ministry—i.e., during the 12 months immediately preceding the signing of the Armistice. Of these 871,769 were placed in Grade I., 546,276 in Grade II., and 756,859 in Grade III. Excluding the rejected Grade IV. men, 25 per cent. of those who were accepted fell into Grade II. and no less than 34 per cent. into Grade III. The Committee who reported on the work of the Ministry of National Service saw no reason to believe that the 2½ million men examined were other than a fair sample of men of military age in this country, and it is fairly clear that when subjected to the test of actual historical fact the argument that acceptance for service is proof that the officer or man was not suffering from disease or incapacity crumbles and disappears. We are, however, not so much concerned with this aspect of the proposed alteration of the Warrants as with the consideration how the alteration would affect the medical men who would be required to carry it out. The medical attitude to the men examined has been invariably one of scrupulous fairness and sympathetic attention. Under the proposed conditions every ex-Service man who, being ill or incapacitated for whatever reason, however long after the war, claimed pension would be entitled, on the face of it, to a decision in his favour, whatever the medical view, unless the Ministry—*videlicet*, the medical men employed by the Ministry—were able to offer medical facts in disproof. It would indeed appear that the only occasion for medical assistance in the determination of entitlement to pension would be that of obtaining evidence in rebuttal of the claim. Whether medical men would consent to carry out this unenviable task, or, if they consented, would succeed in obtaining the necessary coöperation of those in attendance on ex-Service men to whose claims their evidence might prove adverse, must be open to doubt. It seems certain that the existing relations between the body of medical men engaged in pensions work and the pensioners would be profoundly altered—for the worse.

THE King and Queen will visit the new buildings for the Department of Anatomy and for the extension of the Institute of Physiology at University College, London, on May 31st, and will lay the foundation-stones of the new obstetric block and of the nurses' home connected with University College Hospital.

THE LATE DR. P. MULDOON: AN APPEAL.—A few weeks ago Dr. Patrick Muldoon, of Mohill, co. Leitrim, Ireland, was shot dead in the street near his own house. The circumstances of his death have never been cleared up. He was a young man of 31, married, with three children, the eldest only 4 years old. He had already won respect in his profession, both from his brethren and from the public, and a successful career seemed to be open before him. Naturally he had not been able to make adequate provision for his family. An appeal has been issued on their behalf, and subscriptions towards it will be received by the Very Rev. Canon M. Masterson, of Mohill, and by Drs. Chas. Dolan and Thos. Reynolds, of Ballinamore, co. Leitrim.

Annotations.

"Ne quid nimis."

ROYAL MEDICAL BENEVOLENT FUND.

THE urgent needs of benevolent funds to relieve distress within the medical profession will occupy the attention of the annual meeting of this Fund, to be held this year at the Royal College of Physicians, Trafalgar-square, London, on May 7th, at 4 P.M. Sir Thomas Barlow, the President, will be supported by Sir Humphry Rolleston, Sir Anthony Bowlby, and Sir William Hale-White, and addresses will be delivered by the Archbishop of Canterbury and Lord Sumner. The objects of the Fund—(1) to make grants of money to distressed members of the medical profession, their widows, or orphans; (2) to provide annuities for such after they have reached the age of 60 years—are well known to our readers, but the support given is still meagre. The number of new applicants for help in 1922 was nearly double that in previous years, and the value of the grants was also considerably larger; the total number relieved was 483. The income from subscriptions during the year amounted to £3503 and the grant expenditure to £4966. The income from investments was £4166 and the annuity expenditure £4458, leaving a deficit for the year on the two Funds of £1754. The committee, faced for the first time with a deficit, are therefore making a special appeal for new subscribers—an appeal which we have warmly endorsed on many previous occasions. The hon. treasurer is Sir Charters Symonds, and the offices of the Fund are at 11, Chandos-street, Cavendish-square, London, W. 1.

READING IN BED.

SLEEP is accepted as part of the nature of things, and yet we know little about it. Theories of physical recuperation do not explain it, for bodily rest is not sleep and cannot take its place. Sleep is a withdrawal of interest from the world, a retreat from conscious life, a shutting off of outer stimuli, and its onset is heralded by a stage in which coherent thought gives way to an undirected flow of ideas, a flow which may escape notice by those happy people to whom sleep comes as surely and regularly as night itself, but may, by a harassing union of vividness and incoherence, present itself as hypnagogic hallucinations that arrest the onset of the deeper loss of consciousness. Or the flow of ideas may be so charged with emotion that interest cannot withdraw from it, and the worries of the day become the sleep-destroying demons of the night. The inability to sleep is a constant symptom of a condition of anxiety—whether due to current trouble in the outer world or arising from a psychopathological cause within the sufferer—and the thoughts that come crowding into the wakeful night add to the feelings of exhaustion and foreboding that mar the following day. But other conditions influence sleep. The essentials of bodily comfort and a moderate degree of mental or physical tiredness aid that pleasant anticipation which is perhaps the surest prelude to sleep, whilst exhaustion may make its onset irresistible. Although to the town worker exercise and open air are wonderful soporifics, yet there is a condition of being too tired to sleep, and insomnia is not always to be overcome by the induction of fatigue. Some time-honoured ways of wooing sleep—counting imaginary sheep is traditional—depend upon forced attention to unemotional matters, and the somniferous effect of some subjects, or even speakers and writers, arises from the same combination; on the other hand, if spontaneous interest is sufficiently aroused wakefulness may result.

These considerations result from the contemplation of a series of light volumes under the title of "The Bedside Library,"¹ which has been planned for reading

¹ London and Toronto: Messrs. J. M. Dent and Sons. Price of each volume, 2s. 6d. cloth; 3s. 6d. leather.

in bed. We need not assume that the aim of reading in bed is always to induce sleep, nor do the publishers say in so many words that the subjects of these dainty books are selected with that aim, but attention is drawn to the absence of contentious subjects, to the soothing appearance of the form of the book, and to the facility of reading and handling it; attributes not distasteful to him who reads in bed because he likes to, but especially attractive to those who seek in the practice a pleasant aid to slumber. To seize and hold expectant attention would defeat this aim; hence we are not surprised to find that, like contentious material, the thrilling and highly emotional finds no part in the series. The only novel is "Cranford" and, delightful as this classic is, the thread of the story is slender and the drowsy reader can readily break off, to renew on the morrow, his acquaintance with the restful personalities of Mrs. Gaskell's creation. "The Golden Book of St. Augustine" follows, too, the golden mean of moderate interest and in its diction is far enough removed from modernity to call for that effort which, not sufficient to perturb, yet suffices to induce relaxation of effort when other conditions favour sleep. The range of subjects in the series is wide enough for most of those who may seek by reading in bed to induce a flow of mildly toned ideas as a stage towards the night's repose.

ANÆSTHESIA FOR REMOVAL OF TONSILS.

THERE are few operations about which so much difference of opinion has been expressed as has been uttered with regard to the removal of the tonsils. No little part of this divergency of opinion centres on the questions of what is the best anæsthetic to use and how it should be given. In this country there is no large support for the use of local anæsthetics at this operation, and controversy has mainly been waged around the respective merits of chloroform and ether and of a deep or a light state of narcosis. At the present time we believe the consensus of expert opinion is for a deep ether anæsthesia in all but the shortest operations. In America, however, the position is different, because local analgesics have been widely used and recommended for tonsillectomy. In a symposium on the question recently instituted by the *Therapeutic Gazette*, of Detroit, we are able to see that opinion among the contributors to the discussion is pretty evenly divided between those who prefer local and those who prefer general methods. Nevertheless, there are several statements made that will, we think, go far to corroborate in their opinion those operators who employ almost entirely general anæsthetics for the operation of removal of the tonsils. For example, it is pointed out that the danger of pneumonia and abscess of the lung is by no means negligible when local anæsthetics are employed. We know of no statistics showing the rate of occurrence of this complication after removal of tonsils during general anæsthesia, but a wide experience assures us that it must be of the greatest rarity. Similarly, deep cervical infection, a very rare sequel to the operation performed here, appears to be not so unusual after the use of local agents. In fact, it is easy to see how, unless great care and skill are exercised, local infiltration in the neighbourhood of a septic tonsil—and, of course, most of those to be removed are septic—very easily gives rise to serious trouble in the form of a local cellulitis or a more general septic poisoning. In answer to this, of course, it might be urged that the avoidance of these undesirable results is as much in the hands of the surgeon as is the avoidance of accident in anæsthesia in the hands of the anæsthetist; that skilled use of injection, in fact, is no more dangerous than skilled use of chloroform. Each method has an inherent possibility of danger that is only repressed by the knowledge and skill of the user of the method. Yet when it comes to reckoning the safety of the method itself, if ether be substituted for chloroform, we imagine that the inherent danger is larger in the case of injection than in that of inhalation. Some would maintain that this is especially the

case if adrenalin is included in the injection. On the other hand, at least one contributor to the Detroit symposium specifically mentions this drug as increasing the safety of injection.

The question of hæmorrhage bulks largely in the opinions expressed. Those who advocate general anæsthetics urge that the efficient control of bleeding is extremely inconvenient, if not impossible, when only local analgesics are used, should the hæmorrhage require ligation of vessels or suture of the pillars. Their opponents argue that bleeding of this degree is so rare, when local agents are used, that how to deal with it need not enter into any argument about the relative results of local and general anæsthesia. With regard to the age of patients, we note that even the ardent supporters of local analgesia do not recommend its use for children. With adults, too, in the case of this as of every other operation, the mentality and general character of the patient must be carefully assessed before he or she is operated on during full consciousness. Here, moreover, the personality and practice of the operator play a predominating part. There is no doubt that the man who is accustomed to operating on conscious patients, and prefers it, can influence favourably the mental attitude of his patients in a way impossible to him who is not perfectly at home with the method. Nevertheless, some patients pay afterwards for the apparent serenity with which they have borne the operation. There are certain subjects who fall obviously into the category of those who should have general rather than local anæsthetics, and there are some of whom the converse is true. The latter, however, appear to be very few. The serious disturbances of the respiratory tract which almost preclude inhalation anæsthesia are rarely present in those for whom the removal of tonsils is deemed advisable. Even if they were, it is probable that a rectal anæsthetic might be preferable to a local one. It is interesting to note in the opinions expressed in favour of general anæsthesia that nitrous oxide followed by ether is a favourite method. This was the case in Great Britain, but has, we believe, largely been superseded by an open method for throat cases.

THE MANUFACTURE OF INSULIN.

As announced in our last issue, the manufacture of insulin in fair quantity has already been achieved in this country, and a few further details of its manufacture may be of interest. The raw material is ox pancreas drawn direct from the slaughter-houses and brought to the factory within an hour or two of slaughter. Great importance is attached to high speed at this stage, because without it the activity of the gland is destroyed by the proteolytic enzymes of the pancreas. The fresh glands, after careful dissection, are extracted by the method of Banting, Best, and Collip with 50 per cent. alcohol, and this extract is precipitated by adding strong alcohol until the alcoholic strength of the mixture is 80 per cent. The liquid is now filtered to remove precipitated enzymes and so forth; during this stage the liquid is kept at a very low temperature, so that the action of the proteolytic enzymes is inhibited. For this purpose the manufacturers have constructed a specially designed cold-room in which a temperature of -5°C . is maintained. The next stage in the manufacture is concentration in a high vacuum at a very low temperature, and subsequently the fat and lipoids are removed by extracting the concentrated liquid. This liquid is now submitted to a further fractional precipitation with alcohol, by which more impurity is removed; after a further filtration, absolute alcohol is added, by which the crude insulin is precipitated. It is thrown down as a nearly white powder, which is washed and dried; at this stage it possesses an activity such that 40–50 mg. represents an average human dose; it still contains, however, over 90 per cent. of separable inert matter. The removal of the latter constitutes the last stage of the purification. The ingenious method employed for this purpose was, as already noted, discovered in

the laboratories of the National Institute for Medical Research, and communicated to the various firms licensed by the Medical Research Council; by its use the activity of the product is increased so that about 3 mg. represents an average human dose. The many stages of purification referred to above have for their object the removal of all substances likely to cause irritation or to have toxic effects; they also greatly enhance the stability of the finished product. The active substance is a very "sensitive" one, and unless minute attention is given throughout the process to the smallest details it is liable to be completely lost. The next stage in preparing insulin for medical use consists in estimating as accurately as possible its physiological activity. This is done by injecting a series of doses into rabbits and determining the blood-sugar before and after administration. Next, a sterile solution has to be made, and since insulin is not thermo-stable, and therefore cannot be sterilised by heat, this is by no means easy, but it is successfully achieved by centrifugalisation and filtration. Finally, the product has to be tested bacteriologically to confirm its sterility and physiologically to confirm its strength by a further determination of its effect on the blood-sugar of a rabbit. It is then issued in sealed capsules or rubber-capped bottles, each cubic centimetre of the contents containing 20 units of insulin.

THYROID FEEDING AND GROWTH.

ENDOCRINOLOGY has been called a modern form of mythology; at whatever point the scientific worker encounters the endocrine gland, be it on the physiological, clinical, or pathological issue, he is confronted with conflicting statements. A vast number of observations have been made on the subject of growth in relation to the secretion of the thyroid gland. By common consent experimental workers appear to have approached this subject by two methods: (1) extirpation of the thyroid gland, and (2) the feeding of animals with thyroid products. In the case of the former large numbers of experiments have been made since the original observations of Raynard. Many of the results appear contradictory, and it is only of recent years that an explanation has been forthcoming by way of the parathyroids. It seems clear that, generally speaking, in those series of animals in which both internal and external parathyroids were removed along with the thyroids death ensued; whilst in those—chiefly herbivora—in which, by accident or design, the parathyroids were spared, death did not result. In such cases, the parathyroids having been spared, thyroidectomy has resulted, in young animals, in a condition closely resembling human cretinism. On the other side of the picture, thyroid feeding has led to equally contradictory results. Schafer's series of experiments with young white rats showed that thyroid feeding stimulated growth; later other observers obtained contrary results and, on the whole, the balance of evidence, in rats at any rate, appears to be that growth stimulation does not follow thyroid feeding. The whole question is, of course, a very intricate one from an experimental point of view, and involves such issues as fat-metabolism, thyroid toxicity, and the inter-relation of thyroid secretion and iodides—the whole subject indeed, which Prof. E. W. MacBride has termed "internal environment."

During the last few years a new stimulus has been given to the study of this subject by a group of workers who have studied both thyroidectomy and thyroid feeding in amphibia, initiated by the work of Gudernatsch¹ on tadpoles. The advantage of working with amphibia is that a definite end-point can be obtained in the process of metamorphosis; in other words, the question can be studied from the two points of view of (1) growth—i.e., "constant assimilation of food and gradual increase in body size up to a constant maximum"; and (2) differentiation—i.e., metamorphosis. Gudernatsch found that thyroid-fed tadpoles

¹ Gudernatsch, J. F.: *Am. Jour. of Anat.*, 1914, xv., 431.

rapidly metamorphosed into "perfect frogs of minute size, pygmy frogs"—that is, differentiation without growth. Since this work was done many experiments have been made on different phases of the problem, much of it of a fascinating character by reason of the clear-cut end-points which the amphibian experiments yield. By no means the least interesting has been the work of J. S. Huxley and L. T. Hogben² on the Axolotl. This animal is sexually mature in the larval form, and reproduces from generation to generation without leaving the water as an adult salamander. These workers, confirming the original work of Jensen and others, have shown that Axolotl can be metamorphosed on thyroid with the production of exophthalmos, but that iodine free of organic combination fails to have this effect. In a more recent communication Hogben³ has gone a stage further, and he describes the technique and results of thyroidectomy in these animals. Out of 20 animals whose thyroids were excised only 1 died directly from the effect of the operation owing to faulty technique. It is interesting to note that in these thyroidectomised animals, as in normals also, injections of anterior lobe of pituitary produced metamorphosis, whereas pituitary feeding failed. The author also transplanted the thyroids of a large sexually mature Axolotl into another medium-sized individual without producing any signs of metamorphosis.

The importance of this recent work is obvious. It has emphasised once again the number of factors which operate in the vital functions of growth and reproduction. It has opened up new possibilities also in the study of the effects—and possibly the standardisation—of endocrine gland products by the use of the lower animals. In the amphibia, as Hogben points out, it is not a question of comparing relative velocities of growth or weights, but of observing an "all-or-nothing" effect, and it should be possible to test commercial endocrine-gland products in this way with greater precision than can be used in clinical administration. On the clinical side the disorders of growth and development may be due to a variety of causes. Dr. Robert Hutchison⁴ has recently shown how important it is to recognise these differences. Thyroid infantilism, for example, is due to a thyroid deficiency setting in some time after birth, or, if it be congenital, is only partial, and, in Hutchison's opinion, reacts well to thyroid medication; whereas the Lorain type of disease or primary infantilism does not react to this drug or apparently to any other endocrine product, and is presumably of different causation.

MENINGITIS, "SEROUS" AND "SEPTIC."

RECENT correspondence in our columns, consequent upon the report by Mr. H. L. Martyn of the successful surgical treatment of a case of septic meningitis, affords an excellent illustration of the pitfalls into which nomenclature may lead us. Mr. Martyn was undoubtedly dealing with a case in which bacteria were present in the whole of the cerebro-spinal fluid system, since they were seen along with pus cells in that fluid obtained by lumbar puncture. Here, therefore, there is no question of a localised infection, and upon the fortunate termination of the case the patient is to be warmly congratulated, whilst the surgeon has obtained a result which may well be never repeated in his life's experience. This condition, with a purulent infected exudate in the cerebro-spinal fluid, is the criterion of septic meningitis. So far we are upon safe ground. When, however, we come to the discussion of what is meant by "serous meningitis" we step straight into the quagmire of nomenclature—a morass which is further encumbered by the presence of a rival entity in "meningism." The way out is to be found by a consideration of the pathological principles governing the spread of septic processes. It is well known that in all forms of suppuration the fluid products diffuse into the adjacent

tissues in advance of the organisms—upon this depends the phenomenon of chemiotaxis and the emigration of leucocytes which may ultimately delimit the focus of disease. Where the anatomical arrangements of the part are suitable, this "sterile suppuration"—to coin a phrase combining contradictory terms—may be seen in a way in which it is not visible in ordinary abscess formation—for example, in the hypopyon which sometimes accompanies corneal ulcers. In the meninges the anatomical arrangements will allow of a similar demonstration, and it is possible for leucocytes, which have emigrated from the blood-vessels under the chemiotactic influence of diffusing toxins derived from local and delimited zones of suppuration, to be carried by currents through the whole of the cerebro-spinal fluid system and to show at lumbar puncture, in the absence of any actual bacterial infection of the general subarachnoid system. It is in this sense that we may have evidence of meningeal infection without septic meningitis in its fully developed form. Low though the resisting power of the meninges is, it is not entirely absent, and it is highly probable that a slight infection with septic organisms, especially where these are of low virulence, may be recovered from, and this apparently has been the result in Mr. Martyn's case. Upon the well-known facts of the development of suppuration Sir William Milligan's statement that in cases of meningitis there is a stage where the exudate is serous, and another where it is purulent, is perfectly correct; no exudate suddenly appears as pus. The transition to the purulent stage, in the average case, however, is very rapid and the results are very serious. It is only where the cause of the irritation is toxic rather than bacterial, or where, if bacterial, the infection is an extremely mild one, that we can visualise a definite stage in which the exudate can be justifiably referred to as serous and drainage is likely to be effective. With regard to meningism, which appears to us to blend inseparably with "serous meningitis," this must also be looked upon as meningeal irritation from a toxic source. The use of these confusing terms is unfortunate, but it has now become consecrated by time; it would be an advantage, however, if "meningism" and "serous meningitis" were used as synonymous with toxic meningitis, and that the term "septic meningitis" should only be used for definite cases of infection of the subarachnoid space by pyogenic organisms.

PREGNANCY COMPLICATED BY PURPURA.

Dr. George Clark Mosher,¹ of Kansas City, has collected 40 cases of pregnancy complicated by purpura, including one which came under his own observation. The variety of purpura encountered in pregnancy is usually of the hæmorrhagic type, characterised by hæmorrhages from the mucous surfaces, petechiæ, and ecchymoses, a remarkably reduced platelet count, prolonged bleeding time, normal coagulation time, and a non-retractile clot, as in the non-gravid woman similarly affected. In pregnancy, however, metrorrhagia is more frequent. Multiparæ between the ages of 22 and 35 are most frequently affected, and the patient is usually in the sixth or seventh month of pregnancy. Purpura in pregnancy is frequently complicated by some infection, but sometimes occurs apart from this cause as the result of toxæmia. The prognosis is very grave. It is only rarely that a patient recovers after going to term, death occurring at or shortly after delivery from hæmorrhage. The outlook is less serious when there is an early abortion. In half the cases the foetus dies in utero, or a few days after birth. Only exceptionally, as in the present case, does it show any hæmorrhages like the mother. As regards treatment no drugs are of any avail. The only remedy consists in transfusion of blood, keeping the platelet count over 10,000. The present case was that of a VI.-para, aged 36. No abnormal hæmorrhages had occurred in any of her previous pregnancies. Painful

² Proc. Roy. Soc., Ser. B, 1922, xciii., 36.

³ Ibid., 1923, xciv., 204.

⁴ Clinical Jour., April 18th, 1923.

¹ Surgery, Gynecology, and Obstetrics, April, 1923.

purpuric spots appeared in the sixth month of pregnancy on the legs and abdomen, and then gradually affected the whole body. Three weeks later hæmorrhages from the gums and nose began. 10 c.cm. of normal horse serum controlled the loss of blood for three weeks, but then repeated hæmorrhages from the bowels, gums, and nose set in. Horse serum proved ineffective, but the hæmorrhages were partially stopped by transfusion of 350 c.cm. of citrated blood. Through fear of more extensive bleeding labour was induced, and a female infant, weighing 6½ lb., was born and lived 10 hours. Although it seemed strong and well developed, large ecchymoses appeared on its skin wherever it was touched, although there was no loss of blood from the mucous membranes. The mother did not show excessive bleeding after delivery, all the other hæmorrhages ceased after birth of the child, and complete recovery took place.

BRITISH HOSPITALS ASSOCIATION ANNUAL CONFERENCE.

THE annual conference of the British Hospitals Association will be held at the Victoria Station Hotel, Sheffield, on May 31st and June 1st, when Sir Arthur Stanley will preside at the deliberations and the Lord Mayor of Sheffield will welcome delegates. The first business will be to consider the reference from the last annual meeting concerning the establishment of a central fund for the provincial hospitals. Mr. H. J. Waring will then deliver an address on the Future of Voluntary Hospitals from a Medical View-Point, to be followed by a discussion. In the afternoon of the first day of the congress a discussion on Modern Hospital Administration will be opened by Dr. S. S. Goldwater (Mount Sinai Hospital, New York). On June 1st, after a business meeting, Sir Napier Burnett will make a statement on hospital finance, to be followed by an address by Lord Hambleden on Hospital Finance in its Relation to Approved Societies, and a discussion. Various social gatherings have been arranged, including an official dinner to the delegates on May 31st. Many hospitals and convalescent homes in and near Sheffield will be open to delegates in the afternoons. The Sheffield Conference Committee announce that they will arrange to provide private hospitality for such delegates as do not prefer to secure their own hotel accommodation. Official programmes for the conference will shortly be available from the regional secretary, Mr. S. R. Lamb, Sheffield Joint Hospitals' Council, St. Peter's Close, Sheffield.

THE ULTIMATE RESULTS OF GASTRECTOMY FOR CANCER.

THE comparative merits of gastrectomy and gastro-enterostomy for malignant disease of the stomach are carefully weighed in a paper in *Paris Médical* for April 7th by Dr. G. Lion, who backs his arguments by statistics. In the period 1903-1919, 41 of his patients underwent gastrectomy for cancer of the stomach, the operations being performed by various surgeons. There were 16 operative deaths—i.e., a mortality of 39 per cent. Of the 25 who survived the operation, six died within the first year, six within the second year, one lived two years, and another lived two years and a few months after the operation. There remained 11 patients who survived the operation by more than four years, but of these 11 only five were still alive. During the same period 49 patients were treated for cancer of the stomach by gastro-enterostomy. The operation mortality was only 20 per cent.—i.e., approximately half that of gastrectomy. Further, in most cases an appreciable amelioration of the symptoms was obtained. But the duration of this amelioration and of the patient's life was in almost every case very limited, the average being only six to eight months. In the literature of gastro-enterostomy for cancer there have been published

only six convincing cases in which the post-operative survival was a matter of years, and it is doubtful if any patient, in whom the diagnosis of malignant disease was certain, has survived simple gastro-enterostomy by more than five years. On the other hand, among Dr. Lion's 41 cases of gastrectomy there were nine, or 22 per cent., who survived the operation by more than five years. If the operative deaths be excluded, then 44 per cent. survived the operation by more than four years, and 36 per cent. by more than five years. It should also be borne in mind that some of these cases belong to a period when the early diagnosis of malignant disease of the stomach could not be made with the same certainty that it can to-day. With the help of the X rays and other modern methods for the early diagnosis of malignant disease of the stomach, and with improved operative technique, Dr. Lion argues that the late results which he publishes could be considerably improved upon. To the question: Gastrectomy or gastro-enterostomy? his answer is: Gastrectomy in every operable case. He raises another question which may be pertinent in this country as well as in France: Why is the medical profession so shy of the stomach tube? It may often yield information bringing the patient to the surgeon while the disease is still operable, and the risk of making a false passage with a stomach tube is negligible. This cannot be said of the urethral catheter of the use of which few are timid.

COLOURING POISONOUS DRUGS.

IT is stated that the General Medical Council has been invited to express an opinion upon the suggestion that strychnine in future should contain "brilliant green" to an extent that would render it readily recognisable, and it is further proposed that distinctive colouring matter should be added to such commercial products as sheep-dips and weed-killers, with the same object of preventing danger to human life through negligence or criminal intent. It would, no doubt, be desirable in the interest of the patient or dispenser that drugs dangerous to life in excessive quantities, and used in compounding medicines, should be so distinguished that accidental failure to recognise them would become impossible. Such accidents are, however, not common, and a patient might be alarmed at the appearance of a medicine containing a perfectly proper ingredient. In the case of sheep-dips, weed-killers, poisons for vermin, and other substances in common use, criminal trials have shown that poisons such as arsenic can be used with fatal effect, and that their detection may only take place with difficulty when the death of a person poisoned has for some reason excited suspicion. Such suspicion, however, may not arise until it is too late to obtain proof as to how the poison came to be taken, and the form under which it was obtained. How many cases may escape detection altogether is not known. A very vivid and distinctive colouring might deter a poisoner or warn his victim, if it were undisguisable even in minute quantities and highly diluted. It would also, of course, assist in the detection of the cause of death. Whether it would tend to advertise the poison and its efficacy to persons desirous of using it for the purpose of suicide, or to would-be poisoners, who might trust to being able to disguise it, is a question which no doubt will receive consideration.

ATTENTION is called to a comprehensive course on medical hydrology to be held from May 29th to June 4th, a full programme of which will be found in our news columns.

THE Oliver-Sharpey Lectures will be delivered on May 1st and 3rd, at 5 P.M., at the Royal College of Physicians of London, Pall Mall East, by Dr. H. H. Dale, F.R.S. The subject will be the Activity of the Capillary Blood-vessels, and its Relation to Certain Forms of Toxæmia.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XVII.—THE TREATMENT OF MEASLES.

THE more one sees of this disease the stronger the conviction grows that the most essential agencies in the successful treatment of measles, whether in home or hospital, are fresh air and proper feeding. One cannot fail to be struck with the immense, and usually rapid, improvement which takes place when a child, removed from the stuffy and frequently overcrowded atmosphere of a poor home, is placed under hospital conditions, where in addition to personal cleanliness it meets, perhaps for the first time, with an ample supply of fresh air and suitable feeding, not only in respect of the nature and amount of food, but of the conditions under which it is given. It would seem, therefore, that in the home treatment of measles we should aim at reproducing, as far as possible, the conditions a patient would meet with in hospital.

Ventilation of the Room.

Free ventilation should be secured by means of an open window and a fire, direct draught being avoided as far as can be. Warmth of the atmosphere is more important in measles, especially during the early stage, than in any other infectious fever, with the possible exception of laryngeal diphtheria. The temperature of the room should be kept at about 65° F., or a little over, but should not be allowed to rise above 70°. To secure this degree of warmth, however, the ventilation must not be sacrificed, although it is often difficult to avoid doing so in cold weather, if the means of heating are inadequate. Under these circumstances it is better to concede a few degrees of heat rather than restrict the admission of fresh air, in view of the liability to broncho-pneumonia. The room should be bright and cheery, daylight being freely admitted, but so long as photophobia is present glare should be avoided by partially lowering the blind, and the bed so placed as not to face the window. All superfluous furniture should, of course, be removed and strict attention paid to the cleanliness of the room, as should always be the case when dealing with an infective fever. The bedclothes should be light yet warm, and the patient uncumbered with superfluous blankets. A widespread tendency exists among parents to smother the fevered child in an unnecessary amount of bedclothes, under the utterly wrong impression that by this means he will be prevented from "taking a chill." This, of course, is quite a mistake; he is simply rendered restless and uncomfortable. The right time for heaping on additional blankets is not when the child's temperature is raised above the normal, but after defervescence, when the temperature tends to be subnormal and his resistance to "chill" is lowered by the recent fever. If, owing to free admission of air, the room temperature cannot be raised to the desired level, a flannel or woollen undervest is permissible, otherwise a cotton or linen nightdress next the skin is preferable.

In cases where the appearance of the rash is delayed, as not infrequently happens, additional blankets are valuable in promoting the action of the skin, or the child may be placed for ten minutes in a hot bath and afterwards laid between blankets. Should this not be possible a hot wet pack may be tried instead in cases where the rash fails to develop. The prevalent belief that a "suppressed" rash denotes a liability to pulmonary complication is well founded, and is deserving of careful consideration. The patient should be washed all over once a day with soap and water as a matter of cleanliness, while the surface should be sponged over with fairly hot water several times daily. This tends to bring out the rash, induce sleep, and diminish restlessness.

Toilet of the Eyes, Nose, and Mouth.

In view of the fact that the normal catarrhs of measles are apt to assume undue severity and thus ultimately develop into serious complications, routine attention to the toilet of the eyes, nose, and mouth should be undertaken daily as a measure of prophylaxis. The conjunctival sacs should be flushed out several times a day with warm boric lotion, and the opportunity seized to inspect the eyes in a good light at least once every 24 hours, in order to detect the presence of either ciliary injection or corneal opacity at the earliest moment. The child should be encouraged, and, if practicable, taught to blow its nose at intervals, and if much blocked with mucus it is well gently to irrigate the nares with weak boric solution containing salt, one drachm to the pint, at intervals. This will promote the patient's comfort by keeping the nasal passages clear, and lessen the chance of the middle ear becoming involved by extension.

The condition of the mouth and tongue in measles calls for constant attention on the nurse's part, since they soon become dry and foul if neglected. Our aim should be to keep down oral sepsis as far as possible. Failure in this respect may not only make all the difference in the patient's readiness to take his food, but an unhealthy condition of the mouth may be directly responsible for the occurrence of ulcerative stomatitis, gastro-intestinal disturbance, and possibly broncho-pneumonia. To cleanse the mouth the nurse should carefully wipe out the buccal pouches, gums, and teeth on both sides, floor of the mouth, and surface of the tongue with her index finger sheathed in a thin layer of damp cotton-wool dipped in some antiseptic solution. Chlorine lotion, hydrogen peroxide, 2½ per cent., and Condy's fluid are all of them good for the purpose. The tongue should be finally moistened with glycerine of borax, to which a few drops of lemon-juice have been added. The right time for doing out the mouth is immediately after feeding, though patients will often take their food better if the mouth be cleaned before giving it.

The Diet.

The dietary of the measles patient calls for special care, as is evidenced by the frequent occurrence of diarrhoea at quite an early stage of the illness. This is due to intestinal catarrh, and if not checked may lead to rapid loss of flesh and strength; if it arises in the late eruptive stage, it is apt to prove very intractable. The diet should be chiefly milk, diluted with half its volume of water, or preferably, lime-water, given in small amounts and at frequent intervals. If diarrhoea be present, and the patient very young, the milk may be given citrated or peptonised. Beef-tea or meat-broths are best avoided in measles as a possible source of irritation, though, even if diarrhoea is present, small quantities of meat-juice together with a few drops of brandy may be given with advantage in face of exhaustion.

Treatment of Complications.

In view of the fact that the complications of measles may in almost every instance be regarded as an exaggeration of one of its normal catarrhs, local treatment, if undertaken early, might be expected to prove effective in arresting their development. A tendency to laryngitis will be lessened by steam inhalations, and nothing is more effective in soothing laryngeal irritability, and the persistent cough which attends it, than the inhalation of carbolic acid vapour. Bronchitis of any degree calls for counter-irritation and a cotton-wool jacket. The chest may be rubbed with liniment containing camphor or cajuput oil, turpentine, or some stimulating application, and a simple expectorant mixture containing paregoric and carbonate of ammonia given internally.

Should broncho-pneumonia develop, the same treatment is indicated, but the condition is likely to be more serious and protracted. Linseed meal poultices to the chest are valuable in the early stages, especially in the case of very young children. That

the lives of many young children suffering from the broncho-pneumonia of measles and whooping-cough may be, and often have been, saved by the early application of jacket poultices I am quite convinced, the sceptics notwithstanding. In broncho-pneumonia a liberal supply of nourishment and fresh air is of paramount importance. Plenty of milk, supplemented with Benger's food or sanato-gen, egg flip, beef jelly, or meat-juice, and in most cases a little brandy, are the articles mostly to be relied on. Under the conditions of ventilation described above restlessness and pyrexia are reduced, the appetite is remarkably increased, and recovery expedited, while the liability for the child ultimately to fall a victim to pulmonary tuberculosis is considerably lessened. The good results attending open-air treatment of broncho-pneumonia following measles have been convincingly shown by Dr. Claude Ker of Edinburgh.

Diarrhœa.—The mild gastro-intestinal catarrh, which so often attends measles, is liable to culminate in a severe form of enteritis should the diarrhœa be neglected and the patient be fed injudiciously. If peptonising the milk, or diluting it with lime-water, is not successful in controlling the diarrhœa, even with the help of astringents such as bismuth, catechu, and chalk, and a few drops of tincture of opium, milk should cease to be given, and whey, fortified by white of egg, milk-sugar and, later, a little cream be substituted. Small doses of hyd. cum creta and Dover's powder, given two or three times a day, are useful in some cases, while a starch and opium enema (15 to 20 drops of laudanum in 2 oz. of boiled starch) given after each loose stool is sometimes successful. Washing out the large bowel daily with 1 per cent. boric acid is worth a trial in colitis when the diarrhœa proves intractable.

Severe ulcerative stomatitis is rarely seen nowadays, except in children whose resistance has been lowered by other recent illness. If the ulceration is mild in degree and limited to the free border of the gum, painting the affected surface daily with 2 per cent. nitrate of silver and frequent cleansing of the mouth with a solution of hydrogen peroxide or Condy's fluid will be successful, but in a severe case with sloughing of the tissues, nothing short of free scraping of the diseased surface with a sharp curette and the application of fuming nitric acid under an anæsthetic will prove effective.

Conjunctivitis.—For conjunctivitis of slight degree the daily irrigation with boric lotion may prove sufficient, but if there is much chemosis and the discharge becomes purulent the inner surface of the lids should be painted with nitrate of silver, 10 gr. to the ounce, every other day in addition. Should corneal ulceration threaten, an ointment containing yellow oxide of mercury and atropine must be used, and the eyes efficiently shaded.

Otitis Media.—The occurrence of earache, tenderness on pressure over the external canal, and slight pyrexia denotes otitis media, in which case the application of a large hot fomentation to the side of the head, and frequently renewed, will relieve pain and encourage the appearance of a discharge. Syringing the ear several times a day with warm boric lotion following the instillation of hydrogen peroxide drops will soon clear up the otorrhœa.

Infectivity.—The measles patient, though very infectious in the early stage of the attack, soon loses his infectivity, and may be safely allowed to mix again with others at the expiration of a week, dating from the time at which the rash first made its appearance. It is wise, however, in most cases to keep the patient in bed for ten days or more, in view of the risk of pulmonary complications. No attention need be paid to the occasional presence of peeling.

Disinfection.—A rigorous disinfection of the room after measles is unnecessary, simple cleansing being quite sufficient for safety.

F. FOORD CAIGER, M.D., F.R.C.P. Lond.,
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Special Articles.

THE NEW ANATOMY BUILDING AT UNIVERSITY COLLEGE, LONDON.

BY PROF. G. ELLIOT SMITH, M.D. SYD.,
F.R.C.P. LOND., F.R.S.

THE erection of the new building for the Department of Anatomy, which also provides an extension for the Department of Physiology, completes the scheme for the development of the building for the Faculty of Medical Sciences which had long been contemplated, the proposal having been first definitely formulated on the initiative of Prof. E. H. Starling in 1907. Funds having become available through the generosity of a number of donors, amongst whom were Sir W. Gwynne Evans, Prof. Plimmer, Dr. Ludwig Mond, and Mr. Thomas Webb, the portion of the Institute to be dedicated to physiology was begun in 1908 and formally opened in 1909 by Lord Haldane. From the outset the new Institute, under the inspiring guidance of Prof. Starling and Sir William Bayliss, attracted students and research workers from all over the world, and it soon became apparent that the available accommodation was not equal to the demand made upon it. The erection of the second portion of the projected Institute of Medical Sciences—viz., that to accommodate the Department of Pharmacology—was rendered possible by the generosity of the late Mr. Andrew Carnegie. The pharmacology building, which adjoins the Institute of Physiology on the east side, was completed in 1912, in accordance with plans drawn up by Prof. A. R. Cushny, and was formally opened by Sir Thomas Barlow.

A site facing Gower-street, adjoining the western end of the Institute of Physiology, was allocated for the third portion of the Institute to accommodate the Department of Anatomy, hitherto most inadequately housed. Before the scheme could be completed the war intervened, but the College did not abandon hope. The war, if it destroyed any chance of the immediate fulfilment of our plans, brought us into closer relations with the academic institutions and medical men of the United States of America. The Rockefeller Foundation was eager to give some striking expression of American friendship to the British Empire, and was also anxious to enlist the help of British medicine in its great schemes for "the promotion of the well-being of mankind throughout the world." The Foundation has already spent large sums in the United States, in South America, and in China for the establishment of schools in which research and the education of medical men should go hand in hand.

The Rockefeller Gift.

At the end of 1919 two representatives of the Rockefeller Foundation, Dr. Wickliffe Rose, General Director of the International Health Board, and Dr. Richard M. Pearce, Adviser in Medical Education to the Foundation, came over to inquire into the methods, problems, and needs of medical education in Europe. The recent establishment, under the stimulus and with the financial help of the Board of Education, at several of the London medical schools of clinical "units" in medicine, surgery, and gynæcology, staffed by whole-time teachers, excited their interest, since the Foundation had already played a large part in the encouragement and endowment of this system of medical education in America. The essential feature in this system is the close coöperation between all departments concerned in the medical curriculum. It is recognised that medicine and surgery cannot advance except in association with the other departments hitherto regarded as more purely scientific, in particular pathology, anatomy, physiology, and biochemistry.

At University College Drs. Rose and Pearce found a hospital which had been founded for the express purpose of medical education. They found also active and well-equipped institutes for the study of some

branches of medical science and definite plans for the completion of a whole scheme of medical education as soon as the necessary funds were available. Thus, in the College there was fair provision for physiology, pharmacology, and biochemistry, but no proper facilities for teaching and research in anatomy, embryology, and histology. In the clinical subjects of the curriculum, while medicine and surgery were represented by whole-time professors at University College Hospital Medical School, there was a lack of beds devoted entirely to the work of these units, and the accommodation for research into the chemistry of disease was deficient; there was no adequate provision for scientific investigation and teaching of midwifery and the diseases of women. Plans for the remedying of these gaps in the scheme were ready; the only thing necessary was money. The representatives reported favourably on this scheme for the creation of a complete and scientifically equipped School of Medicine to the Rockefeller Foundation. As a result the Foundation decided not only to place at the disposal of University College sufficient funds for the realisation of the scheme formulated in 1907, but also to provide the additional endowment required to maintain the increase in staff which the scheme entailed. At the same time the Rockefeller Foundation made an even larger gift to University College Hospital Medical School for the promotion of the work of the clinical units.

Reform in the Teaching of Anatomy.

Histology.—It is appropriate that the attempt to institute radical reforms in the teaching of anatomy and in the provision of facilities for research should be made in University College. Paradoxical as it may appear, the reforming zeal of Prof. Sharpey at this College 70 years ago had as one of its ultimate results the crippling of anatomical effort in England, and it is proper that the College which created a physiology so vigorous as to take to itself the more vital and progressive parts of anatomy should be the institution to right this ancient wrong by restoring to anatomy the opportunities for teaching and research in histology and practical embryology, and for the experimental study of the factors that influence growth and development.

The structure of the nervous system, its developmental history, and the connexions displayed by degeneration and experiment are all subjects which should be studied as one connected whole in the Department of Anatomy; and if the complexities of the nervous system are to make any intelligent impression upon students, the functional significance of the arrangements must be discussed and the effects of damage to the nervous system must be used, not with any pretence of teaching the student clinical medicine, but in order to give him some satisfying explanation of a complex and otherwise unintelligible mechanism. It is necessary, then, in any properly equipped institute of anatomy, to provide a neurological department equipped with sets of slides of adult human and embryonic material and of the brains of other vertebrates, and with laboratories for the experimental study of the results of degeneration.

Experimental Work.—It is an essential part of the work of a Department of Anatomy that it should carry on experimental investigations of the factors which influence growth and development and of the causation of anomalies and monstrosities. Such researches have led to results of great importance in exposing the underlying principles of development as well as in explaining the causation of pathological conditions. The equipment of laboratories for such experimental work is therefore a necessary part of the scheme.

X Rays.—The knowledge of the structure of the living body that can be acquired by the use of the X rays is becoming increasingly important in the study of anatomy. At present a student is called upon to interpret radiograms long after he has left the Department of Anatomy, when his familiarity with the relations of the structures has grown dim. The proper time to acquire an understanding of X ray appearances is when the student is actually studying the things of

which the X rays cast shadows, and such studies also teach him his anatomy. The equipment of a Department of Radiology opens up a promising field of anatomical research, which will become increasingly fruitful as the technique of radiography is improved.

A Scheme of Coöperation.

The completion of the building for these three closely allied sciences of anatomy, physiology, and pharmacology is the expression of a far-reaching scheme of coöperation, involving, on the one hand, the closer correlation of teaching and research in these sciences, and on the other the linking up of the work done in the Faculty of Medical Sciences in the College with that done in the Medical School of the Hospital. Moreover, the building is a permanent symbol of the bond that unites us in a common aim with the Medical Schools of America and with the Rockefeller Foundation. The new anatomy building is linked by means of a tunnel passing under Gower-street with the Medical School of University College Hospital, and it is anticipated that this physical avenue of communication will facilitate a freer intercourse between each set of workers to their mutual benefit. The extension of the Department of Physiology affords ampler provision for teaching and research in experimental physiology, and makes it possible for Prof. Starling to remain in the College as Foulerton Research Professor of the Royal Society, even though he relinquishes the Jodrell Chair of Physiology and the Directorship of the Institute which he created.

The Rockefeller endowment has made it possible not only to create a University Chair of Biochemistry, but also to increase the accommodation allotted to this subject. Training will now be provided not only for students of medicine, but also for biochemists, who are in constant demand in research and industry. For these a definite curriculum has been devised.

THE THIRTY-FIFTH CONGRESS OF INTERNAL MEDICINE AT VIENNA.

THE German Society of Internal Medicine, perhaps the most important of all German medical corporations, meets every second year at Wiesbaden, and each alternate year in some other German or Austrian city. This year the place of meeting was Vienna; the Congress, held during the week April 8th to 14th, was the first real international medical assembly in the city since 1913. The attendance numbered more than 1400 medical men, including representatives of the Scandinavian States, Italy, Spain, Russia, Egypt, Japan, China, Canada, and the German-speaking countries. Prof. Karl Wenckebach, well known for his researches in the pathology of the heart, presided over the Congress, of which the transactions were divided into three large groups: Encephalitis lethargica, with its concomitant conditions; hypertension; and disorders of internal secretion. In his introductory address Prof. Wenckebach discussed the relation between the artist and the scientist. Both, he said, are gifted with fancy and observation, both produce results obtained by a combination of mental labour and intuition, and varying according to the proportion of these elements. Observations on children show that the latter possess to a remarkable degree the ability to perceive the characteristic traits of an object. Similar conditions prevail with primitive man, who possesses the same power, as prehistoric cave-drawings have proved; but with the increase of conscious knowledge this power of perception is lost, both in the individual child and in the race. "Knowledge displaces sight," except in a small minority of people; the latter, who retain their congenital gifts, are the artists and idiots. In medicine it is important to observe, without paying too much attention to knowledge alone. According to the present method of medical study, the student must acquire a great deal of knowledge in a very short time, and must believe what others tell him. Prof. Wenckebach urged that

the student might be encouraged to form his own opinion, based on sound knowledge of fundamental principles, and to stay longer than the statutory five years in hospitals and wards. Careful observation of the subject should be the basis of instruction, to enable the doctor, like the artist, to teach himself.

Encephalitis Lethargica.

Prof. K. Economo (Vienna), one of the first men to describe encephalitis lethargica, opened the discussion on this disease. "Sleepy sickness," he said, was first described in 1872 at Tübingen, and in 1890 similar cases were reported from Italy after an epidemic of influenza; in the winter of 1916-17, in Vienna, there occurred about 50 cases of what was recognised by him to be an independent disease, manifested by a tendency to protracted sleep, with marked squint. The condition lasted several weeks or months; about 30 per cent. of those affected were cured; an equal proportion died, whilst the rest remained permanent invalids. Investigations showed the presence of certain bacteria in the brain; Doerr and Levaditi found that these bacteria were filtrable and transmissible to the cornea of rabbits, where they produced conditions very similar to those obtained by infection with the contents of the ordinary herpes vesicles. It seemed likely that the aetiology of herpes and that of encephalitis lethargica were identical, but in the latter disease the virulence was much greater for reasons still unknown. Transmission probably took place through the air, by way of the naso-pharynx. A very few contacts were infectious (4 per cent.). Treatment against the encephalitic processes could be satisfactory in the early stages only. Intravenous injection of large doses of iodine gave good results in acute cases; chronic cases were still resistant to treatment. The clinical manifestations were sometimes more choreic, terminating in cataleptic conditions, with peculiar disturbances of will or intention. Observations of these conditions proved the function of sleep and awakening to be controlled by a certain focus in the brain very near the centre for ocular movement; encephalitic lesions of this focus produced changes in the rhythm and duration of sleep—e.g., months of daylight sleep. The cataleptic conditions were traceable to an organic lesion of the ganglia situated between the optic thalamus, the corpora geniculata, and the pineal body. The chief interest of these manifestations was centred on the fact that "will" (intention) no longer appeared to be entirely a result of psychical processes. Cataleptic conditions were formerly regarded as symptoms of psychic disease, but it was now found that a patient in such a condition had a well-localised organic lesion in the borderland between the ganglia connected with sensations and movements. The explanation of certain neuroses and psychoses, formerly thought to be due to psychic repression, had thus been placed on a new anatomical basis.

A second paper on the same subject was read by Prof. M. Nonne (Hamburg), who dealt chiefly with the clinical picture of the disease. He had examined and observed 162 cases, and was satisfied that between the acute and chronic stages a normal stage might intervene lasting up to three or four years. Few cases were definitely cured; the after-effects were more or less marked in nearly all patients. Prof. Nonne agreed with Prof. Economo as regards the aetiological factor, but suggested the possibility of a special neurotrophic toxin, similar to that found in meta-syphilitic processes. He thought that the frequent disturbances of the function of the liver might be explained by assuming a lesion of a brain-centre regulating the functions of this organ. The manifestations of chronic encephalitis could be placed in three groups: In the first psychic symptoms were prevalent; in the second the disturbances were centred in the organs of movement; and in the third metabolism was chiefly affected. Very often nothing was observed but a change of personality, without marked intellectual difference. The study of the pathology of this disease had greatly influenced current views as

regards the diseases of the nervous system; it had given useful clues as to the function of the nucleus caudatus and nucleus lenticulatus, parts of the brain which controlled the voluntary innervation of single groups of muscles. The slightest conscious voluntary innervation of a given group of muscles required an involuntary "synergistic" innervation of numerous other muscles; chronic encephalitis lethargica, however, disturbed this innervation control, with the resulting characteristic "cataleptic" conditions (Parkinson). The tonus of the muscles, and the attitudes and positions of the joints, were regulated, apart from conscious volition, in the ganglia which are chiefly affected by the inflammations of encephalitis lethargica. The metabolic disturbances so often noted after the attack pointed to inflammation of the controlling brain-centres; these were marked adiposity with nervous disturbances, and extreme emaciation without disease, as well as with diabetes mellitus and insipidus. (Prof. Nonne had observed a case with an output of over 20 litres, or 40 pints, a day.)

The Laws of Heredity.

An animated discussion followed these two reports, during which many speakers expressed agreement with the ideas set forth. Amongst other papers may be mentioned that of Prof. A. Pick (Prague), who discussed the problems of "heredity in mankind." The laws of Mendel, he said, were valid in this connexion, but it was extremely difficult to obtain suitable material for study, as experimentation was hardly possible. Satisfactory observations were made on twins from the same ovum. He had seen and read of only 30 cases in 12 years of hereditary diseases in such twins; and even normal traits (finger-prints) had been observed by very few workers. As a rule, such observations had only been reported where twins were attacked synchronously by the same disease (e.g., epileptic seizures, asthma, diabetes, or infectious disease with very similar course), whilst recessive diseases, which would give a much better insight into the laws of heredity, were rarely reported. It was important to remember that whilst twins from the same ovum were always of the same sex, only 25 per cent. of the same sex were from the same ovum. Yet in a case of colour-blindness and in another one of alkaptonuria, in absolutely certain twins of the same ovum, only one twin was diseased. As regards the variation of dominant symptoms, convincing data could rarely be obtained; Prof. Pick could show, however, that in some families migraine, Graves's disease, or asthma, from which one of the parents suffered, was transmitted to the offspring in such a way that the child strongly resembling the diseased parent was much earlier affected by it than the child resembling the healthy parent; the latter child, indeed, was often only affected after the age of 50 years. For the study of such problems, it was suggested that family histories should be collected by family physicians, and that a central institute for pedigrees and family histories should be called into existence.

Surgical Treatment of Angina Pectoris.

Prof. Wenckebach described Prof. H. Eppinger's experiments at Vienna, in which angina pectoris was treated by division of the depressor nerve of the heart. Up till the present the operation has only been done in six cases and the results have been satisfactory. It is based on the researches of Spiegel, who found that there existed a certain type of transmission of pain which he called "Gefässschmerz" (pain of the blood-vessels). The technique of this operation is not yet sufficiently perfected to be generally encouraged. Dr. Torney (Budapest) recommended the injection of cardiac remedies direct into the aorta, especially of adrenalin in cases of collapse. Prof. H. E. Hering (Cologne), Prof. E. Edens (St. Blasien), and Prof. Hediger (Zürich) read papers on cardiac pathology.

Hungarian physicians presented a series of papers on the process of digestion; their researches showed that mastication only influenced the emptying of the stomach in so far as it changed the consistency of the food ingested, which was evacuated according to its

chemical constitution; the carbohydrates were emptied first, the fats last. Great interest was evoked by the paper by Dr. W. Stern (Vienna) on voice-production in patients on whom laryngectomy had been performed. He showed three patients of this kind, who had been taught to use their stomach as bellows for producing an excellent voice in the pharynx. They had learned to swallow large quantities of air and to expel it by using the abdominal muscles, like ventriloquists. This work is important in connexion with the advisability of total laryngectomy in laryngeal cancer.

(To be concluded.)

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The "Half-Deaf" Club.

ABOUT two years ago a school was opened for the partially deaf, in the otological section of the St. John's Hospital, Budapest. It is the experience of teachers of the deaf that the partially deaf can be cured, in the sense that they can be trained to compensate for their disability, but that for this purpose they must be entirely separated from the deaf-mutes. The Ministry of Public Instruction and the city council of Budapest coöperated in the organisation of this school, the Ministry selecting teachers from the deaf-mutes' institutions and the city giving the necessary premises. At present 45 partially deaf children attend the school. There are also courses for adults, and all instruction is free. I have visited one of these schools and heard a lesson given to adults. The teacher narrated his experiences gained on a journey to Turkey, and the partially deaf pupils repeated his words without error. They could not understand single more difficult words, but the teacher wrote the latter on a blackboard, and the pupils rapidly learned to lip-read them. Two teachers sat among the students, and explained the more difficult expressions. The director of the school told me that the course for adults lasts three months; the first course is about to terminate at the present time. One student is a judge, entirely deaf, but now able to lip-read any person's speech without fail. After the course care is taken to maintain contact with students by means of the "Half-deaf" Club, where weekly lectures and concerts are held. There are similar clubs in Berlin and Vienna. In all there are about 14,000 partially deaf persons in Budapest, and many of these have notified their intention to attend the courses.

"Lithia" Waters in Hungary.

Hungary is well known to be very rich in mineral waters; the country may be said to supply the world with aperient waters, and in addition to them has excellent lithia waters. The owners of the springs cannot, however, afford modern machinery for bottling, &c. Several new springs have lately been discovered, all containing more or less lithia; but the term "lithia water" is now too freely used in Hungary and neighbouring countries, waters which contain the merest trace being advertised under its name. This state of affairs is due to the fact that the springs containing lithia in abundance were almost all in those parts of Old Hungary separated from it by the Treaty of Versailles. This fact necessitates legislation to circumscribe the meaning of the word "lithia"; the definition given, in a memorandum prepared to that end, contains the following statement: "This element, as is generally known, occurs in many natural mineral waters in the form of hydrocarbonate and chlorate of lithia, but quantitatively it never forms the chief constituent of these waters. If, however, the carbonate of lithia can be shown by analysis to be present in a quantity of 2 to 3 cg. in one litre of water, this fact may be mentioned in the analytical report for its characterisation and for the estimation of its therapeutic value,

just as mention is made of the fact that a water contains iodine, bromine, &c. This fact alone, however, does not constitute the value of a mineral water, because the therapeutic value and action of natural mineral water are manifested not only in the several constituents present in minute quantities, but depend on all the constituents as well as on their relation to each other. To-day it is generally accepted that every mineral water must be regarded as a separate compound, for two absolutely similar waters cannot be found; consequently, the action of two mineral waters cannot be equal. If this principle were rigorously applied, the action of every mineral water should be separately tested. If, therefore, a certain mineral water contains lithia among other constituents, it is not proper to stress the presence of this one constituent and call it a lithia water. In order to prevent the misuse of this name it would be useful to have a legally protected standard of the amount of lithia required before the name may be employed."

April 10th.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. L. E. Dartnell has been placed on the Retd. List with rank of Surg. Capt.

Surg. Comdr. C. H. L. Petch has been placed on the Retd. List at own request. —

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. W. J. Waters retires on ret. pay.

Capt. C. R. Dudgeon retires receiving a gratuity, and is granted the rank of Maj.

Capt. W. T. G. Boul (late R.A.M.C., Spec. Res.) to be Capt.

Lt. R. K. Nisbet to be Capt. (prov.).

General Hospitals: The undermentioned having attained the age limit are retired, and retain their rank except where otherwise stated: Lt.-Cols. C. P. Childe (Bt. Col.), E. L. Fox, G. G. Sparrow, H. W. Shettle, J. R. S. Robertson, J. Kyffin, and C. F. Routh; Maj. T. A. M. Forde (Bt. Lt.-Col.), J. R. Keele, W. P. Purvis, H. P. Ward, R. A. Dove, W. C. Wilson, and G. F. Aldous; Capt. G. C. Sandford (granted the rank of Maj.), C. L. Lander (granted the rank of Lt.-Col.), E. G. S. Saunders, W. C. Hamilton, T. Horton, G. A. Roberts, E. R. Clarke, F. E. Price, S. Goss, W. P. McEldowney, J. T. M. McDougall, M. D. Wood, H. L. Driver, and W. Carling.

Capt. G. P. Mills relinquishes his commn. and is granted the rank of Maj.

Sanitary Service: The undermentioned officers relinquish their commns. and retain their rank: Lt.-Cols. Sir A. Newsholme, W. Collingridge, and M. Hay; Maj. S. Barwise, P. Boobyer, H. Handford, E. W. Hope, T. W. J. Kelly, J. Niven, H. C. Pattin, A. E. Parmewan, W. H. Symons, J. S. Tew, J. C. Thresh, L. C. Parkes, W. J. Howarth, J. Murray, A. M. N. Pringle, H. Scurfield, and D. Forbes; Capt. L. M. Bowen-Jones, W. F. Brown, G. H. Carrington, F. J. H. Coutts, J. H. C. Crocker, J. Dawson, A. J. Duncan, E. T. Fison, J. T. Graham, T. W. Graves, A. J. Hall, J. A. Hislop, R. Jones, A. Ledingham, W. C. Lewis, J. D. McCrindle, C. R. Macdonald, A. J. McGregor, W. Mackie, A. C. Munro, J. T. C. Nash, M. Paterson, H. Peck, G. Peterkin, F. B. W. Phillips, J. T. Prangnell, E. W. Rees, Jones, A. Robb, T. Robinson, J. M. Ross, T. Rutherford, E. H. Snell, F. E. Streeten, C. Templeman, A. E. Thomas, J. P. Watt, J. H. Williams, J. T. Wilson, R. M. Yule, A. B. Dunne, T. E. Francis, J. J. Buchan, and F. J. Allan.

ARMY RESERVE OF OFFICERS.

Capt. S. Pinion, late R.A.M.C., to be Capt.

TERRITORIAL ARMY.

Lt.-Col. G. A. Troup, from T.A. Res., to be Col. and Asst. Dir. of Med. Servs., 54th (E. Angl.) Div., T.A.

ROYAL AIR FORCE.

The undermentioned are granted permanent commissions as Flight Lts.: J. R. Crolus and J. M. A. Costello.

C. A. Meaden is granted a temporary commission as a Flight Lt.

INDIAN MEDICAL SERVICE.

Col. J. Jackson to be Maj.-Genl.

Capt. Govind Shivram Mandlik relinquishes his temp. commn. and is permitted to retain the rank of Capt.

THE TEACHING OF OBSTETRICS AND GYNÆCOLOGY.

REPORT ON EXISTING ARRANGEMENTS.

Dr. Janet Campbell's report¹ on the arrangements now in vogue for teaching obstetrics and gynæcology in the medical schools of Great Britain is part of a larger inquiry into the causes and prevention of maternal mortality, the results of which are to be made public later. The first necessity of an efficient midwifery service, as Sir George Newman remarks in a prefatory note, is the training of the medical practitioner. The report is divided into three parts. First, notes are given of the facilities provided by 24 medical schools, including 12 in London, seven provincial English universities, four Scottish universities, and the Welsh National Medical School. Secondly, Dr. Campbell makes observations upon the working of these arrangements and the organisation of the educational facilities. And thirdly, conclusions and recommendations are set down which emerge as a result of Dr. Campbell's knowledge and experience in this and other countries.

Provision of Maternity Beds.

The provision of such beds in the teaching hospitals of London is, Dr. Campbell reminds us, a recent development, initiated primarily to meet the needs of students from such universities as Oxford and Cambridge (where in-patient maternity experience is a requirement), but extended because its value to all students has become more clearly appreciated.

In 1906 only two hospitals in London with medical schools possessed lying-in wards, and these were not used for teaching students. Certain hospitals, for example, Charing Cross, St. George's, and Westminster, have still no maternity beds, though such provision is under consideration, and the first two hospitals will probably have maternity wards at an early date. In others the number of beds varies from seven (St. Mary's), eight (University), and nine (London Hospital) to 17 (St. Bartholomew's), 21 (St. Thomas's), 24 (King's College), and 40 belonging to the Royal Free Clinical Unit. All these beds are not wholly at the service of medical students, for to some (e.g., London and Guy's) pupil midwives have a prior claim. Others are divided more or less equally between students and pupils (e.g., St. Thomas's), but the advantage of the medical school being in direct control of both beds and extern district is very great from the point of view of teaching.

In most cases arrangements are made for the students to reside at or near the hospital while taking their midwifery practice, and this should be an invariable rule. The time seems to have come for the teaching hospitals in London to reconsider their accommodation for maternity cases. In Scotland and in the provinces instruction in practical midwifery is usually less closely associated with the university and medical school. The general hospitals used for clinical teaching have no maternity beds (except the Royal Infirmary and General Hospital, Bristol, and the Queen's Hospital, Birmingham), and most students take their midwifery, intern and extern, at a maternity hospital which is also a training school for midwives and over which the university may have little or no direct control.

Maternity hospitals in Aberdeen and Dundee are under the direct supervision of the professors of midwifery, but students compete with pupil midwives, and the number of cases is inadequate for both. The professors of midwifery in Glasgow have no direct control of the maternity hospital. In Edinburgh the maternity hospital is in various respects admittedly unsatisfactory, but the professor, as ex-officio senior physician, is responsible for the general medical management and has access at all times for teaching. In Newcastle the maternity hospital is extremely inadequate, but new premises are about to be provided; the professor exercises general supervision, and there are sufficient cases. In Manchester, St. Mary's Hospitals with 58 maternity beds

are available. In Sheffield there is the Jessop, with 24 maternity beds. In Leeds the Maternity Hospital has 75 beds, but is overcrowded, and the professor is merely one member of the staff, with no ex-officio duties or privileges. At Bristol there are 24 beds at the Royal Infirmary, and 22 (midwifery and gynæcological) at the General. At Birmingham there are three maternity beds at the Queen's, and students are permitted to observe the practice at the Maternity Hospital. At Liverpool there is the Maternity Hospital, which is largely used for pupil midwives; there are five ante-natal beds at the Royal Infirmary, which will shortly be increased by about 20 maternity beds, under the professor.

Pre-Maternity Clinics.

Originating in the somewhat casual arrangements for "booking" prospective maternity patients such ante-natal clinics are rapidly becoming an important branch of the out-patient department. A pioneer centre is that established by the late Dr. J. W. Ballantyne in connexion with the Edinburgh Maternity Hospital, which is now maintained by the local authority as part of the public health activity of the city. The ante-natal clinic at the London Hospital is an example of a recently established centre where the work has become highly developed. At some maternity hospitals the extension of pre-maternal supervision has been hampered by lack of accommodation, but a centre of some kind has proved practicable everywhere. Special arrangements for social service in connexion with ante-natal work are made by the almoner's department at St. Thomas's, the London, and the Royal Free Hospitals and elsewhere. Pre-maternal supervision offers the most promising field for true preventive work in midwifery; it gives opportunity for the investigation of abortions and stillbirths, and it affords the most hopeful means of reducing the heavy mortality of the newly-born which occurs during the first days and weeks of life, a death-rate which has scarcely been touched by the ordinary methods of infant welfare. It may be hoped that post-natal supervision will invariably be added, and that patients will learn to come for examination at least once after the confinement. The post-natal clinic is one of the best instruments of preventive gynæcology. Such a clinic has recently been established at the Royal Free Hospital.

Recommendations.

The principal factors needed to bring the arrangements for teaching midwifery into a position comparable with that of other clinical subjects of the medical curriculum are set out by Dr. Campbell in a concluding section.

Adequate Time.—Where necessary, the curriculum might properly be modified so as to provide a minimum period of three months' whole-time for the study of gynæcology and obstetrics, including the care and management of infancy, to which, whenever practicable, a further period of one month for intern and extern midwifery should be added; this period to be extended when the Resolutions of the General Medical Council come fully into operation.

A Sufficient Number of Maternity Beds to enable all Students to Obtain Suitable In-patient Practice.—Few hospitals attached to medical schools possess sufficient maternity beds to enable the students to secure the minimum amount of in-patient experience recommended by the General Medical Council—namely, the personal delivery of five patients under supervision—and the maternity hospitals which accept medical students are seldom able in existing circumstances to make adequate provision for their training. It is generally agreed that the only way in which a student can be given a clear and correct conception of the principles and practice of clinical midwifery is by means of systematic instruction in the lying-in ward. It is, therefore, most desirable that the authorities of the medical schools should carefully consider how the necessary maternity beds can be made available for teaching purposes, whether by a re-allocation of existing beds, by the addition of new beds to the hospital, or by coming to an arrangement with a maternity institution elsewhere. In-patient practice should be supplemented by work on the midwifery district only when the student has sufficient knowledge of the technique of delivery.

Systematic Instruction in Ante- and Post-natal Supervision for all Students.—Until recent years the care of the mother before and after parturition has received relatively little attention. Pre-natal care, which includes suitable physical examination and the supervision of the general health

¹ Ministry of Health. Reports on Public Health and Medical Subjects. No. 15. Notes on the Arrangements for Teaching of Obstetrics and Gynæcology in the Medical Schools. By Janet M. Campbell, M.D., M.S., Senior Medical Officer for Maternity and Child Welfare. H.M. Stationery Office. 1s. 3d.

throughout pregnancy, is the most effective means we have, first, of eliminating the element of unexpectedness, which leads to a large proportion of the disasters in midwifery practice, by enabling operative measures to be avoided or carried out under pre-determined conditions; and secondly, of applying treatment for constitutional maladies—e.g., syphilis, the toxæmias of pregnancy—which, if neglected, exercise a harmful influence upon the pregnancy. In such ways lives of both mothers and children may be saved, and the injuries which often follow emergency midwifery may be prevented. Post-natal examination is important in order that pathological sequelæ of parturition not previously observed may be promptly recognised and rectified.

Instruction in the Theory and Practice of Midwifery, by means of systematic lectures, clinical demonstrations, the ante-natal clinic, the use of dummy and foetus, and attendance on the practice of a maternity hospital. A considerable part of this teaching may usefully be taken before the student commences his practical midwifery, so that he is in a position to obtain the greatest value from the experience he gains in delivering his own cases.

Instruction in Clinical Midwifery by a Teacher of Experience.—It is essential that the medical student should be trained in the management of normal labour no less carefully than the pupil midwife. Only so can he learn to recognise and appreciate the significance of abnormal conditions when they arise, and unless he is thoroughly familiar with the varying course which a normal case may pursue, he may easily become unduly alarmed at unexpected delay and inclined too readily to invoke the aid of operative modes of delivery. In studying the treatment of difficult labour he should learn to give due weight to the added risks inseparable from operative procedure, and the importance of avoiding artificial methods of delivery as far as practicable.

The Recognition and Treatment of Puerperal Infection.—The student should be taught the various manifestations of puerperal infection and the far-reaching effects which even a relatively mild degree of sepsis may have upon the future health of the patient. He should not only understand the clinical aspect of such cases, but the danger to the community which may follow, and the part the doctor or midwife may unwittingly play in spreading infection. He should realise the importance of notifying puerperal infection, no matter how slight, and the value of the assistance which the medical officer of health of the district to which the patient belongs is able to render in regard to nursing or isolation. Similarly the student should receive definite teaching as to the onset, course, and treatment of ophthalmia neonatorum, and the disastrous results the smallest neglect may have upon the eyes; here, also, he should learn the importance of co-operation with the local authority, and the same applies to the treatment of venereal disease associated with pregnancy.

The Effective Control of the teaching of practical midwifery by the medical school or faculty so that each student may be sure of delivery personally at least the required minimum number of midwifery cases. Two things seem to be necessary—namely, exercise of the student's own responsibility in delivery, and such modifications in the examination as will stimulate interest, good workmanship, and sound practice.

Medical Staff.—The department of obstetrics and gynaecology should be staffed in such a way as to admit of the two subjects being taken as integral parts of one whole, so that the student may realise how, on the one hand, the pathological sequelæ of childbirth take their place among "diseases of women" and, on the other, the effect which gynaecological maladies may exercise upon pregnancy and labour. Further, the staff organisation should provide for instruction in the elements of clinical midwifery being given by an experienced teacher; at the present time much of the teaching and responsibility for practical work still remains in the hands of junior and temporary members of the staff who have insufficient knowledge both of midwifery and of the educational methods of presenting the subject.

Conclusion.

Dr. Campbell ends on a note of hope. So much progress, she writes, has already been made towards the organisation of wholly satisfactory and efficient education in midwifery and gynaecology, and the value to individual patients and to the community of an adequate midwifery service is becoming so plainly recognised, that we may look forward hopefully and with confidence to a time not far distant when all practitioners will not only be well and thoroughly trained in this branch of the medical curriculum, but will possess the knowledge and sympathy needed to bring about a mutually advantageous partnership with local authorities and the State. For without such co-operation the most fruitful results of public and voluntary effort for the welfare of mothers and children cannot be obtained.

Correspondence.

"Audi alteram partem."

SERUM DOSAGE IN DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—That the recent discussion regarding the method of administration and the correct dosage of diphtheria antitoxin should have been called for at all fills me with feelings akin to despair. I had believed that, when the Ministry of Health had arrived at the point of advising practitioners to use an 8000-unit initial dose, the teaching of many years had at last received its hallmark of approval. Now that great authority Dr. Claude Ker has doubts about it. I feel strongly that if Dr. Ker's life had been spent in the East-end of London instead of in the northern metropolis he would have no doubts. It is evident, as Dr. Peters says, that diphtheria at Colinton has no comparison in toxicity with either East-end or, for the matter of that, Bristol diphtheria; and it follows that if, in Edinburgh, the disease is less toxic, the terrible results of delay in diagnosis and in administration of the remedy are there less apparent. When I joined the late Dr. J. Biernacki at Plaistow in 1906 the 8000-unit dose was the usual. Delayed diagnosis and hence tardy admission to hospital were such that very rarely could we feel safe in giving less. We taught the students the importance of large initial doses then, and my experience since those days has only served to increase manifold my faith in them. It is, indeed, a calamity that after so many years of teaching, when one has worked men up to giving large doses, the ground should be taken from under one's feet in this way. I have seen diphtheria in several parts of the country, but I still believe that in the East-end it is toxic as it is nowhere else. But in teaching dosage to students who are going to practise one cannot safely take into consideration either this, or such a case as Dr. Ker's case of convalescent scarlet fever, which he saw almost at the moment of onset. One must teach broad facts, and leave the exceptions to look after themselves when one is teaching juniors. Post-graduate work in fevers—more's the pity—is not often called for.

The other point is the question of intravenous medication. I have the typed copy of Dr. Biernacki's lecture on laryngeal diphtheria, 1906, by me as I write. "At Plaistow Hospital the antitoxin is given by preference intravenously, but a selected serum is then advisable." One might add that the serum should also be warmed before use. During the whole period of over two years in which I followed Dr. Muir as deputy medical superintendent at Plaistow I gave many hundreds of direct intravenous injections in the more toxic cases. I entirely agree that an anæsthetic is not to be thought of, nor is dissecting out of the vein. But that time—I put it at eight hours—is gained by this method is, I think, undeniable, and I have ever since taught it to students, as I taught it at Plaistow with Dr. Biernacki's approval. It is not as a rule a difficult matter in children over 3 years of age if one has an assistant accustomed to holding the arm. Manual constriction of the arm by her instead of by tourniquet is the method par excellence. I have never used any other form of bringing up the vein in children. If it failed one might try the other arm; if that failed also, one then gave the serum subcutaneously. Anaphylactic phenomena of any severity were never seen by us.

As I emphasised in an (unpublished) address before the Bolton Medical Society some years ago, it is a noticeable feature at the present time when taking the family history of young adult lives of good class for life insurance purposes, how often one is told of the death of a brother or sister of the proposer during childhood from diphtheria. That this should still be the case after antitoxin has been the accepted remedy for so many years shows that unnecessary

deaths are occurring. These cases have been in a class of person who are observant and who call in the doctor at the first sign of anything going wrong with a child. Earlier diagnosis, without waiting for results of swabs, and doses which take into account not only the size of the patch or patches, but the duration of the disease (how is it Dr. Ker does not mention this in his "scales of dosage"?) and the site of the patches must still be forcibly taught.

One thing more. Teach parents that the thermometer is not to be the only reason for calling in the doctor; for these calamities occur in well-to-do folk who are inclined to let the thermometer decide as to whether the doctor shall be summoned or not. And yet, as all fever men know, the temperature at the onset of diphtheria may be subnormal, and the child, or even adult, may make no complaint of sore-throat.—I am, Sir, yours faithfully,

FRANK E. TYLECOTE,

Senior Assistant Physician, Manchester Royal Infirmary.

April 17th, 1923.

To the Editor of THE LANCET.

SIR,—In reply to the various criticisms on my views regarding serum dosage I admit that Dr. Frederic Thomson has a strong case, for it is obviously difficult to plead economy in questions concerning the preservation of human life. None the less, I feel that we should, when responsible for public money, exercise as rigid an economy as our experience may be held to justify. I agree with Dr. Thomson that it is often impossible to predict the subsequent course of any particular case, and that therefore it is reasonable to play for safety. Still, I think, the evidence of the superiority of the large over the small dose is not so extraordinarily convincing that we need resort to it in every suspicious case, when comparatively small amounts of serum are likely to be effective in the vast majority of cases with which we have to deal.

I must plead guilty to having raised what, I fear, is a somewhat academic question, for, as I suggested in the last lines of my paper, it is most unusual for us to admit to hospital a patient who has received any antitoxin at all. At a recent discussion of the Fever Group of the Society of Medical Officers of Health I found that the experience of the hospital superintendents present was similar to my own, and that the admission of such cases was most exceptional. It would be a great advance if we could convince the practitioner that a case suspicious enough to swab is suspicious enough to treat, and I believe that even the small doses which I recommended would, if given as a routine when the swab is taken, make a remarkable reduction in the death-rate of diphtheria. It is possible, moreover, that such a routine might be more readily adopted if the dose suggested was small and cheap. It doubtless would be less likely to have any effect on the cases which occasionally surprise Dr. Thomson and, I must add, myself, and would be useless in the type described by Dr. B. A. Peters, but it would be of inestimable advantage to a very large number of patients.

Fluctuations in case mortality have occurred from time to time in Edinburgh as in Bristol. I have seen small groups of cases resembling those mentioned by Dr. Peters, usually coming from a particular district for a short space of time. If the type is so general in Bristol I can only congratulate Dr. Peters on a remarkably low death-rate, as I think serum does as little good in such cases as it does in the hæmorrhagic type which, even if treated early, seems invariably to be fatal. It would be interesting if Dr. Peters would tell us the total dosage which he is accustomed to employ for them. Whether they are due to a special strain of bacilli not provided against in ordinary serums, or, as I have sometimes suspected, to a mixed staphylococcal infection, I doubt very much if even the 8000 units advised by Dr. Thomson would do any more good than my own smaller dose.

A great deal seems to depend on whether toxin already combined with tissue can be detached or not.

Dr. William Park seems convinced that it cannot, Prof. Th. Madsen suggests that it can provided very large, 100,000 to 200,000 unit, doses are used. If it cannot, I understand Dr. Madsen to imply that 4000 units will neutralise any free toxin even in a severe case. Dr. Park thinks that more than 25,000 units in a child, or 50,000 in an adult, is quite useless. Even if we decide to be guided by clinical results we get little help and, I submit, not very much encouragement to use large doses. At a meeting reported in last year's Transactions of the American Pediatric Society Dr. E. Place gave interesting statistics of the case mortality of three groups of patients treated at the Boston City Hospital at different periods. All laryngeal and anterior nasal cases are deducted. The 1654 patients of the first group received an average of 1800 units with a case mortality of 8.8 per cent. The 1913 patients of the second group received an average of 15,000 units with a case mortality of 9.4 per cent. In the third group 820 patients, 62 per cent. of whom had intravenous injections, with an average dosage of 30,000 units, showed a case mortality of 7.6 per cent. Even allowing for possible fluctuations in virulence, it is difficult for the supporters of large doses to extract much comfort from these figures, especially as the slight advantage of the third group might be not unreasonably attributed to the intravenous administration. In the discussion which followed Dr. Park stated that, in groups treated with amounts of serum rising from 2000 to 16,000 units, there was practically no difference in the case mortality, though the patients who received the larger doses seemed to make more rapid recoveries. An attempt to dispense with serum altogether produced such results that the experiment was hastily abandoned. On the other hand, Dr. Madsen claims to have lowered his death-rate by the use of colossal doses, such as Dr. J. McCollom introduced many years ago at Boston, but as the case mortality was reduced from 2 to 0.8 per cent. his figures are difficult to compare with those from countries with a higher mortality. It would almost appear that all that we can actually be certain of is that patients who receive serum do very much better than those who do not, and that the earlier the first dose is given the better they do.

My experience of intravenous injection in young children is very much that of Dr. E. W. Goodall, and I reserve this method for very severe cases occurring at an age when a vein is readily accessible. Even then I use it with a certain nervousness, as rigors and collapse, probably the result of protein shock, are not very unusual. I doubt if the method is justifiable except for patients dangerously ill. Dr. Park and, more recently, Dr. Madsen have shown that a fairly rapid concentration of antitoxin can be secured by the intramuscular route, and it is this that I have employed for all cases for the last ten years.

I entirely agree with Dr. Goodall that the fault of the practitioner is waiting for the result of the culture. But some medical men dislike sensitising a patient unnecessarily, and others, influenced by accounts of fatal anaphylactic shock, hesitate to risk an injection until they obtain proof that it is required. As regards the doctor being summoned too late, I fear we can do nothing. Lamentable instances of such delay are only too common, and probably will remain the most important cause of death from diphtheria.

I am, Sir, yours faithfully,

CLAUDE B. KER, M.D.

City Hospital, Edinburgh, April 15th, 1923.

"ENCEPHALITIS LETHARGICA" OR "ECONOMO'S DISEASE."

To the Editor of THE LANCET.

SIR,—Although eponymous terminology is, as a rule, undesirable, there are instances in which it is to be welcomed. Thus, "Graves's disease" is a better term than "exophthalmic goitre," seeing that neither goitre nor exophthalmos is invariably present in it.

Similarly, I would submit, "Economo's disease" is a better designation than "encephalitis lethargica," where neither lethargy nor evidence of encephalitis is essential to the diagnosis; it entails no misapprehension; in fact, it avoids any.

As Prof. A. J. Hall has well said, in his Lumleian lectures, "the name encephalitis lethargica survives chiefly from reasons of sentiment, since it is the one selected by von Economo. By retaining it we pay tribute to his remarkable work; a work rendered even more remarkable by the fact that it was carried out at the height of a great war, under all the difficulties which that involved." I share this sentiment, but think it would be better expressed by giving to the disease the name of its discoverer. When Freiherr von Economo chose the present name, it covered the known facts; now he would probably be the first to admit it no longer does so. His name is so familiar in connexion with the disease that the one immediately recalls the other. I believe the adoption of the term "Economo's disease" would tend to clear the path of further observation.

I am, Sir, yours faithfully,

Exeter, April 17th, 1923.

W. GORDON.

A CASE OF PARKINSONISM WITHOUT INITIAL SYMPTOMS OF ENCEPHALITIS.

To the Editor of THE LANCET.

SIR,—Prof. A. J. Hall has referred in his recent Lumleian lectures to the clinical differences between Parkinsonism and the pre-senile form of paralysis agitans. The following case illustrates some of the points in this connexion. The patient, a married woman of about 35, first came to me as an out-patient at the Miller Hospital in March of this year. She had been treated for some months for indigestion, she always felt tired, took little or no interest in things, and merely wanted to sit about. Her general appearance was characteristic of the Parkinsonian type of disease; she had a mask-like expression, and the typical slow progression and stiff attitude of body with the arms held a little forward, the elbows being slightly flexed. There were none of the movements commonly seen in the ordinary pre-senile type of paralysis agitans, and the clinical picture suggested the Parkinsonian sequelæ of lethargic encephalitis. I went carefully into the previous history expecting to get a story of an attack of so-called influenza, but was unable to elicit an account of any definite febrile period. I saw the patient again at my house together with Prof. Hall. She had not been conscious of any visual disturbances such as might have suggested ophthalmoplegia. The indigestion of which she had complained began apparently about a year ago, a point of some importance, in connexion with the seasonal incidence of the disease. She slept well and could go to sleep easily at any time that she liked, but there was no evidence of her having had any involuntary lethargic periods. On examination the first and most obvious signs were the rigidity of the upper limbs, the general posture, and the mask-like features and extremely fixed expression. The pupils reacted to light and accommodation, but the latter reaction was sluggish and the accompanying convergent movements of the eyes were weak and ill-sustained. There was no true nystagmus, but slight nystagmoid movements and a certain weakness were apparent on extreme lateral movement. There was evident difficulty in fixing objects. The fundus oculi appeared normal on both sides. When the patient was asked to open the hand quickly after making a fist, there was some hesitation and slowness in extension of the fingers. A slight fine tremor was observed when the arms were extended. There was a definite fine tremor of the tongue and slight hemi-atrophy affecting the left side. Some tremor of the lips was also noticed. The knee-jerks were easily obtained and were brisk on both sides. Her general health was good, the indigestion having by this time disappeared. She had had amenorrhœa

for about three months, but the periods had recently come on again; she did not think there had been any question of pregnancy.

Apart from the question of age and the absence of the characteristic pill-rolling movements, the early and comparatively sudden appearance of the mask-like face in this patient was the principal feature which made me think at once of encephalitis lethargica. The interesting features of the case were the insidious onset and the complete absence of evidence of the previous occurrence of any of the sudden symptoms or febrile manifestations which usually characterise the onset of this disease. For this reason this case appears to me to belong to a type which, so far as I am aware, has not hitherto been recorded, namely, that of encephalitis lethargica—"forme fruste"—in which no characteristic symptoms occur in sufficient quantity to attract the attention of the patient or his friends. While in the ordinary types the acute period of the disease may be so short as to be forgotten by patients, a careful review will usually reveal some feature or features which enable one to trace the date of onset with fair accuracy. It is interesting to note that the only previous symptoms mentioned by this particular patient were those of dyspepsia, and it is recognised that gastro-intestinal disturbances may sometimes occur as early symptoms of lethargic encephalitis.—I am, Sir, yours faithfully,

MAURICE DAVIDSON.

Wimpole-street, W., April 20th, 1923.

THE LIFE-HISTORY OF THE TAPEWORM, HYMENOLEPIS NANA.

To the Editor of THE LANCET.

SIR,—In your issue of April 21st my friend, Dr. Wm. Nicoll, corrects a "slightly misleading statement" occurring in a recent issue of the *Tropical Diseases Bulletin* to the effect that Nicoll and Minchin claim to have obtained cysticercoids of *Hymenolepis nana* in fleas. Dr. Nicoll states that no claim was intended, and that there is nothing in the published report (Proc. Zool. Soc., 1911) to suggest such. As the statement referred to occurred in a review of recent contributions to medical helminthology written by me for the *Bulletin*, I may be allowed to say that the claim attributed to Dr. Nicoll and Prof. Minchin rests upon the authors' abstract published by the Zoological Society, November, 1910, which states that one of the cysticercoids found in the fleas "was probably the larva of *Hymenolepis murina*, a species occurring in rats and mice and very similar to, possibly identical with, *H. nana*, a dangerous tapeworm of man." "The chief interest of the discovery lay in the fact that no intermediate host was previously known for this tapeworm." The last sentence (italicised by me) forms the basis of the statement of which Dr. Nicoll complains.—I am, Sir, yours faithfully,

R. T. LEIPER.

London School of Tropical Medicine, Endsleigh-gardens, London, N.W., April 24th, 1923.

HOFMANN'S BACILLUS AND TONSILLITIS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of April 21st Dr. David Smith takes me to task for assuming that Hofmann's bacillus is non-pathogenic. In the work in question the majority of the organisms came from boys without symptoms, and these strains were presumed to be non-pathogenic. However, I should not like to maintain that bacilli with a morphology of the Hofmann type can never cause symptoms. Pathogenicity is an attribute that seems very variable, and under the influence of a suitable environment it is quite conceivable that certain strains of Hofmann-like bacilli are sometimes pathogenic. Many times in sore throats, not resembling diphtheria, I have found Hofmann bacilli as predominant organism, yet in the light of my own experience I have hesitated to ascribe an ætiological significance to this fact.

These bacilli are also frequently associated with true diphtheria bacilli in the throats of both carriers and cases. In the former they may prevent satisfactory demonstration of the toxic diphtheria bacilli, but in actual cases of diphtheria it is very rare to be unable to isolate the toxigenic bacilli from the admixture with atoxic Hofmann bacilli.

In the absence of information as regards the virulence of the bacilli from Dr. Smith's cases; from the fact that some of the patients responded so promptly to specific diphtheria antitoxin; that the clinical condition suggested diphtheria, and yet bacilli which morphologically resembled toxic *B. diphtheria* could not be demonstrated, it seems quite possible that these patients were infected with a toxic diphtheroid of the Hofmann type. The evidence, however, is far from absolute, and even if it were absolute, it does not alter the probability that usually Hofmann's bacillus is harmless. Dr. Smith's interesting series of cases is also strong confirmation of the opinion expressed in my report, that, whatever the bacteriological findings may be, antitoxic serum should be given to any patient whose clinical condition suggests diphtheria.

I am, Sir, yours faithfully,

R.N. College, Greenwich, April 23rd. S. F. DUDLEY.

ANNULAR SHADOWS IN THE RADIOGRAM.

To the Editor of THE LANCET.

SIR,—In the course of some notes on X Ray Examination of the Chest, which appeared in THE LANCET of March 17th (p. 535), we expressed the opinion that radiogram No. 6 showed a small circular cavity at the apex of the left lung. Some of your correspondents take the view that this was not a cavity, but a pleural annular shadow. We therefore take this opportunity of giving more in detail our reasons for thinking this was really a shallow cavity, bounded by a ring of fibrous tissue.

1. There can be no doubt clinically, and all medical men who have had him under observation agree, that his patient has tuberculosis of the lungs, although he now has no sputum or other physical signs.

2. There must, therefore, be a tuberculous focus in the lungs, and the only evidence that exists of this is at the apex of the left lung, where we are of the opinion that a shallow cavity is present.

3. The X ray appearance of this annular shadow is constant, and is present in several radiographs which have been taken at long intervals. It is to be seen on the fluorescent screen, and is as plainly visible from the front as from the back.

We are, Sir, yours faithfully,

BERNARD HUDSON.

Montana, Valais, Suisse, April 16th. PERCY G. SUTTON.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR.—I am from Australia commissioned to investigate for the Government of Victoria the Spahlinger treatment for tuberculosis. I thought it best to go straight to Switzerland, and before seeing Mr. Spahlinger I went up the mountains to investigate his treatment in action in a sanatorium. I then came down and spent some days with Mr. Spahlinger at Geneva and his wonderful laboratory and experimental farm with horses, cows, goats, &c. During this time I was constantly examining patients who were being or had been treated along Spahlinger lines—comparing old and present conditions, examining old and recent ray pictures of chests, listening to histories, &c. I then read the reports of a number of cases in journals and in manuscript ready for publication that had received this treatment at the hands of chestmen of repute. I understand I have yet to see cases in England that had undergone this treatment. Any further evidence I feel sure will only confirm me in reporting to my Government that Henry Spahlinger's vaccine and serum treatment in tuberculosis stands by itself, and that the medical pro-

fession should lose no time in taking a definite stand in this matter. But the production of these remedies and prophylaxins is almost at a standstill. The Spahlinger family, once in affluent circumstances, are now almost penniless. They have spent all they had in this self-imposed search for potent anti-tuberculous vaccines and sera. Henry Spahlinger loathes publicity, lives in an atmosphere of patient and cheery altruism, has spurned repeated offers from firms and private individuals to "commercialise" his work—offers that would have resulted long ago in retrieving his family's fortune.

There is still another serious matter. The long strain of work and debt-carrying is beginning to tell on Mr. Spahlinger. There have been for some time unequivocal signs of nerve depletion. Truly there are the makings of a tragedy here.

I am, Sir, yours faithfully,

London, April 17th, 1923. J. F. MACKEDDIE, M.D.

To the Editor of THE LANCET.

SIR.—I first became interested in the work of Mr. Henri Spahlinger, of Geneva, by reading the communication presented to the Paris Academy of Medicine. Unfortunately, I found it impossible at that time to obtain the vaccines and sera, the stock having been exhausted by the experiments carried out in London. In 1918 Dr. Stephani, whom I consider to be one of the highest authorities on tuberculosis in Europe, informed me of the remarkable results which he had obtained with the Spahlinger treatment, invited me to experiment with it, and supplied me with serum. Shortly afterwards I met Mr. Spahlinger, who explained to me the principles of his method and the ideas which had guided him in his research work. The latter coincided in every way with my own ideas.

I used the antitoxins and bacteriolysins in a certain number of cases under experimental conditions which were, however, somewhat unfavourable, since in several instances injections had to be postponed for lack of serum. In spite of this fact, my results were very encouraging. In every case treated, whether of medical or of surgical tuberculosis, the sera exerted a very favourable curative action. With the bacteriolysins I regularly obtained complete drying-up of tuberculous fistulae after four or five injections. My tests brought me to the conclusion that Mr. Spahlinger's researches are extremely interesting. In my opinion they constitute the most rational direction in which search has been made for a specific treatment of tuberculosis. The combination of antitoxic sera and bacteriolytic sera enables one of the most important stumbling-blocks of this specific therapy to be avoided. My results allow me to state that this method is the best means of treatment of medical and surgical tuberculosis, and I shall gladly associate myself with everything that may be done to assist Mr. Spahlinger to popularise the use of his very promising method.

The following is a brief note of a case under my own observation:—

In July, 1918, a small tuberculous nodule appeared at the head of the left epididymis, increasing in four weeks to the size of a haricot bean. Dr. Calot and Prof. Sebileau advised against any surgical intervention. The condition persisted until March, 1919, when the nodule again began to grow, extending along the epididymis until in August, when the head was completely involved, the tumour was three centimetres long and the thickness of the little finger, capping the testicle; there were also several isolated nodules on the latter. In September a small nodule appeared on the right testicle. In October a left hydrocele developed, attaining a capacity of 200 c.cm. At the beginning of November 10 c.cm. of Spahlinger's bacteriolysin No. 5 were given daily by the mouth for three days, and resulted in complete disappearance of the liquid contents of the hydrocele. Ten days afterwards, alternate injections of six 2 c.cm. ampoules of polyvalent bacteriolysins M.1 and M.2 were given, followed after ten days' interval by six similar injections. During the following three weeks' rest generalised troubles appeared—fever, cramp, general fatigue, and loss of appetite—which persisted for a fortnight; at the same time the tumour became progressively smaller, so that after a fortnight the testicle was left entirely smooth, with no trace of tuberculosis, and the same size as the other, from

which the small nodule had also disappeared. The patient's general condition then improved greatly, and a return of the trouble seems improbable; it is now 42 months since the end of treatment.

This case was treated under the observation of Prof. Gosset and Prof. Desmarais, surgeons to the Paris Hospitals and professors in the Faculty of Paris.

I am, Sir, yours faithfully,

CAMILLE SAYOIRE,

Formerly Honorary Director, Dispensaire Antituberculeux de l'Hôpital Beaujon; and Secretary, Commission de la Tuberculose du Ministère de l'Intérieur.

1, Avenue de Parc Monceau, Paris.

THE TREATMENT OF GONORRHOEA WITH A NON-SPECIFIC PROTEIN.

To the Editor of THE LANCET.

SIR,—The gonococcus cannot resist a high temperature, and it has been observed that if an intercurrent febrile disease arises, whilst a patient is suffering from gonorrhoea, or an acute epididymitis complicates the case, the urethral discharge may cease never to return. But attempts to raise the temperature locally by means of electrical instruments have failed as it was found impossible to raise the temperature of the urethra to that of the instrument. Specific vaccines have not proved satisfactory, and the question has arisen whether it is the specific or the non-specific substance in a vaccine which is beneficial. Peptone, serum, and vaccines were at first used as a source of protein, but in 1916 Schmidt and Saxyl reported that protein reactions could be produced by intramuscular injections of sterilised milk. It therefore occurred to me that these injections, which have the power of raising the body-temperature, might have some effect upon the gonococcus.

I have now treated with intramuscular injections of sterilised milk 36 cases (31 males and 5 females) of gonorrhoea, all in the acute or subacute stage. Four of the males were complicated by acute epididymitis and prostatitis. Three were final year medical students who made observations on the effect of treatment. At first 5 c.cm. of sterilised milk were injected into the gluteal muscles. This was followed by a chill, a feeling of general malaise, and a temperature which rose rapidly, reaching a maximum of 102° F. at eight hours, and falling to normal within 24 hours. The general effect varied according to the stamina of the patient. The day following the injection practically no urethral discharge was seen. In the complicated cases all pain, swelling, and discomfort in the testicle and posterior urethra had subsided and only a thin serous discharge was observed at the urethral meatus. On the third day another 5 c.cm. were injected, the reaction following was more severe—probably due to sensitisation—but all symptoms of gonorrhoea disappeared and never returned. In two, however, a recurrence was noted and on investigation a severe infiltration was found in the anterior urethra, due to an old attack of gonorrhoea. After high dilatation a cure was obtained.

It is now my practice to give 10 c.cm. at one sitting, 5 c.cm. into each buttock, and it is very rare that a second injection is required. The dangers attached to this treatment are practically nil; care, however, must be taken that the injections are not intravenous. I met with no anaphylactic phenomena. The mode of action is difficult to explain as the maximum temperature recorded was only 102°, and the effect may be due to the action of non-specific proteins. The results are sufficiently good to stimulate further trial.

I am, Sir, yours faithfully,

Harley-street, W., April 20th, 1923.

M. W. BROWDY.

THE LATE DR. JAMES EVAN JONES.—Dr. Jones, who died at his residence at Ludgershall, Wilts, on April 15th, aged 51, was a student at St. Bartholomew's Hospital, and took the Conjoint qualification in 1895. He was for a time in mining practice in South Wales, moving to Ludgershall on his appointment as surgeon to the contractors for the Tidworth Garrison in 1900. He stayed on to practise in the district and became a great friend of the poor.

Medical News.

UNIVERSITY OF LONDON: *Representation on the Senate*.—A vacancy has arisen in the representation on the Senate of the University of London of graduates in medicine of the University. The two candidates who are standing for election are Robert Arthur Young, M.D., B.Sc. Lond., F.R.C.P., and George Leslie Eastes, M.B., B.Sc., M.R.C.S. L.R.C.P. Both candidates have issued election addresses. Dr. Young, who is supported by the University of London Graduates Association, states that if elected he would endeavour to assist in maintaining the full privileges of Convocation, and would oppose most strenuously any proposal tending to lower the standard or lessen the prestige of the degrees of the University. As a teacher he is in full sympathy with the efforts now being made by the medical faculty of the University to render the curriculum and courses of study in medicine as uniform as possible, so as to simplify the problems of teachers and of students in the medical schools. He feels that it is important that the time devoted to the study of the clinical subjects should in no way be curtailed, but at the same time is fully convinced that the instruction in the preliminary and intermediate subjects should be as thorough and as practical as possible. Dr. Eastes in his election address points out that with the retirement of Dr. T. D. Lister the Senate loses its sole representative of the large element amongst the graduates who are engaged in general or special practice, but are not teachers. His programme includes an endeavour to increase facilities and accommodation for communal life among the students, particularly amongst post-graduate workers; to promote the advancement and more thorough teaching of pathology in the curriculum; and to expedite provision of facilities for post-graduate work. The election will be held on May 2nd.

Course on Medical Hydrology.—A course of lectures for medical practitioners and senior students on Medical Hydrology has been arranged by the University Extension Board of the University of London in co-operation with a Joint Committee of the International Society of Medical Hydrology and the Section of Balneology and Climatology of the Royal Society of Medicine. The lectures will be held at the University of London, South Kensington, and will be supplemented by demonstration, and by clinical instruction at British spas; the course will begin on May 29th and end on June 4th. It is intended for those who are engaged, or propose to engage, in spa practice, for medical officers of hydrotherapeutic institution and sanatoriums, and for others interested in the subject. The University will grant a certificate of attendance to those who have attended the whole course, taking both theoretical and practical work. On May 29th Dr. Leonard Hill, F.R.S., will give the opening lecture on the Physiology of Cold, Heat, and Light. Dr. R. Fortescue Fox will speak on the Qualities and Actions of Medicinal Waters; on the Action and Uses of Baths; and on the Applications of Hydrology to Incipient Disease on May 29th, 30th, and 31st respectively. Dr. Wilfrid Edgecombe will deal with the Treatment of Cardio-vascular Affections by Waters and Baths on May 30th; Dr. Charles W. Buckley will deal with the Hydrological Treatment of Rheumatism, Gout, Infective Arthritis, and Fibrositis on May 30th; and Dr. Rupert Waterhouse will lecture on the Treatment of Nervous Disorders by Waters and Baths on May 31st. Demonstrations of various forms of bath will be given by Mr. H. S. Souttar, Dr. J. Campbell McClure, and Dr. Arthur S. Herbert at the Special Surgical Hospital, Ducane road, Shepherd's Bush, on May 29th, and of the recording katha-thermometer and other methods of controlling open-air treatment by Dr. Leonard Hill, at the National Institute for Medical Research, Hampstead, on May 30th. A study tour to Harrogate will be made, and free hospitality for a limited number will be provided at the spas. All communications with reference to the course should be addressed to Dr. Edgecombe, care of University Extension Department, University of London, Imperial Institute road, South Kensington, London, S.W. 7.

A course of eight lectures on Nutrition will be given by Prof. V. H. Mottram at King's College for Women (6 Campden Hill-road, W.8) on Mondays and Wednesday April 30th, May 2nd, 7th, 9th, 14th, 16th, 23rd and 28th at 4.30 p.m. Attendance at this course is recognised in connexion with the B.Sc. (Honours) degree in physiology.

UNIVERSITY OF GLASGOW.—At the ceremony of graduation on April 17th the Straits Settlements gold medal for thesis for M.D. on a subject in connexion with tropical medicine or tropical hygiene was awarded to Dr. Thomas Mackie. Among special class prizes the Asher Asher gold medal for laryngology and rhinology was awarded to Mr. Murdo Nicolson.

ROYAL INSTITUTION OF GREAT BRITAIN.—The Friday evening discourse on May 4th, at 9 P.M., will be delivered by Prof. Frederick Soddy, F.R.S., on the Origins of the Conception of Isotopes. On May 1st, at 3 P.M., Sir Arthur Keith, F.R.S., will give his fourth lecture on the Machinery of Human Evolution, entitled, Are our Bodies Changing? On May 5th Dr. Leonard Williams will give his second lecture on the Physical and Physiological Foundations of Character. The annual meeting will be held at 5 P.M. on May 1st.

THE LATE MR. G. M. P. MURRAY.—By the sudden death of Mr. George Murray on April 19th the dental profession of Dublin has lost one of its most respected and loved members. Mr. Murray qualified L.R.C.S.I. in 1878, becoming F.R.C.S.I. in 1889, and later a member of the council of the College. He was one of those who built up the Dental Hospital and its Dental School, and for many years he had been honorary secretary of the hospital. His charm of manner and courtesy were the natural expression of an attractive personality and will be much missed.

PRESENTATION TO DR. BYROM BRAMWELL.—The presentation of two portraits of himself to Dr. Byrom Bramwell will take place at the Royal College of Physicians, Edinburgh, on Saturday, May 19th, at 5.30 P.M. The subscriptions obtained have sufficed to provide two portraits, both of which have been painted by Mr. David Alison, R.S.A. At the request of the committee responsible for raising the fund Sir Humphry Rolleston and Sir David Drummond have undertaken to make the presentation. One portrait is to be retained by Dr. Bramwell, and the second is to be presented to the Royal College of Physicians, Edinburgh, and will be received on behalf of the college by Sir Robert Philip.

A CAMPAIGN FOR TWO MILLION SHILLINGS.—The Lord Mayor of Manchester has launched an ambitious scheme in order to obtain two million shillings from the public of Manchester to clear the Manchester hospitals of debt. The Lord Mayor stated that Leeds, Glasgow, and Birmingham had all done more for their hospitals than Manchester for hers. A scheme was taking shape for inducing all workpeople to allot one penny per week from their earnings for the hospitals. If every man and woman employed in the works and warehouses of Manchester would contribute this penny a week £50,000 would be forthcoming annually. A "Flying Week" was launched on April 21st at the local aerodrome, the proceeds to go to the hospital fund. It was announced that £5000 had already been subscribed towards the desired £70,000.

QUEEN MARY'S HOSPITAL.—On April 16th the Countess of Pembroke opened a new wing of Queen Mary's Hospital for the East End, Stratford, E., which will provide accommodation for 40 patients. It has been erected at a cost of some £30,000, of which £10,000 has been given by Mr. Charles Lyle in memory of his wife. On the same date Mr. W. Thorne, M.P., laid the foundation-stone of the West Ham Memorial Hospital, which is to take the form of a new out-patient department of Queen Mary's Hospital equipped with all modern improvements.

COCAINE SUBSTITUTES COMMITTEE.—The Home Office and the Ministry of Health have had under consideration the possibility of the use in medical and surgical practice of substances which might serve the same therapeutic purpose as cocaine, but be free from its deleterious properties. The Minister of Health has decided, after consultation with the Medical Research Council, to appoint a committee with the following terms of reference: "To investigate the comparative value, for the therapeutic purposes for which cocaine is at present used, of various possible substitutes, and the evidence as to risk, if any, of such substitutes becoming drugs of addiction." The committee will consist of Dr. J. Smith Whitaker, a senior medical officer of the Ministry, Chairman; Dr. Norman G. Bennett, dental surgeon, Royal Dental Hospital, London; Dr. R. W. Branthwaite, a commissioner of the Board of Control; Dr. T. Carnwath and Dr. G. F. McCleary, medical officers of the Ministry; Dr. J. H. Chaldecott, senior anaesthetist to St. Mary's Hospital, Paddington, nominated by the Section of Anaesthetics of the Royal Society of Medicine; Dr. H. H. Dale, of the Medical Research Council; Mr. T. B. Layton, surgeon in charge of the Throat and Ear Department of Guy's Hospital, nominated by the Section of Laryngology of the Royal Society of Medicine; Mr. R. Foster Moore, surgeon, Royal London Ophthalmic Hospital, nominated by the Section of Ophthalmology of the Royal Society of Medicine; and Sir William Henry Willcox, nominated by the Home Office. The secretary is Dr. E. W. Adams, a medical officer of the Ministry, to whom all communications relating to the work of the committee should be addressed.

The annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant on Wednesday, June 20th. Tickets and particulars may be obtained from the joint hon. secretary, Colonel J. J. Pratt, I.M.S. (ret'd.), 63, Addison-road, Kensington, London, W. 14.

A SANATORIUM FOR SALFORD.—The Nab Top Tuberculosis Sanatorium at Marple, Cheshire, belonging to the Salford Borough Council, has been formally opened, having been in use for four months. The sanatorium has 100 beds, 95 of which are already occupied. Dr. C. H. Tattersall, lately medical officer of health for the borough, stated at the opening ceremony that the official history of the plan began in 1913, although it was conceived in 1901. Delays from one cause and another arose, and the estimated cost rose from £18,000 to £25,000 in 1914, to £45,000 in 1919, and finally to £88,250 in 1920, when the contractors began work.

FEDERATION OF MEDICAL AND ALLIED SERVICES. A meeting of the Medical Council of the Federation will be held at the offices, Stratford-place, W., on Tuesday, May 1st, when a provisional report will be received from a committee formed to advise regarding death certification and the disposal of the dead. The committee consists of Sir Malcolm Morris, Col. Fremantle, M.P., Mr. H. T. Herring, Dr. Louis Parkes, and Mr. F. W. Davy, with Sir McKenzie Chalmers. Having regard to the "Coroners' Law and Death Certification (Amendment) Bill," recently presented to Parliament by Major Molloy, M.D., M.P., the report will be of topical interest. Mr. Herring will explain its purport to the Council.

THE LATE DR. JERVOIS AARONS.—Dr. Aarons, who died on April 21st after an operation, was educated at the Universities of Sydney and Edinburgh, graduating M.B., C.M. at the latter in 1895, and becoming M.R.C.P. Lond. a few years later. He had held appointments as pathologist and registrar at the Hospital for Women, Soho, and as tutor in midwifery and diseases of women at the Extra-mural School of Medicine, Edinburgh. With Dr. Thomas Wilson he represented the Royal Society of Medicine at the Fifth International Congress of Obstetrics and Gynaecology held at Petrograd in 1910. He was the author of a number of useful little books, including "Golden Rules of Gynaecology," "Gynaecological Therapeutics" (1910), and "Aids to Gynaecology" (1912). Among his colleagues Dr. Aarons was best known for his work on sterility; to this subject he devoted a great deal of attention, and he came to be recognised as one of the foremost authorities upon it. In this branch of medicine he was sincere and enthusiastic without being fanatical, and he was very successful in obtaining results. His gentle and courteous personality undoubtedly went a long way in the winning of the confidence of his patients, and his death will be very widely regretted.

NORFOLK AND NORWICH HOSPITAL.—The annual meeting of the governors of this hospital took place on April 14th. The number of in-patients admitted during the quarter ending March 31st was 780, compared with 758 in the corresponding quarter last year; and the daily average of in-patients was 266, compared with 247 last year. The number of operations had been 699, against 694 last year. In the out-patient department 1145 new cases were treated, and there were 1565 accidents and casualties. In the corresponding period last year these numbers were 900 and 1450 respectively. These figures showed that the work of the hospital was increasing. The chairman of the board of management stated that there was still a debt of £19,000, though the total debt had been reduced by £2000 during the year. He commented on the success of the contributory scheme of maintenance which had realised £17,880, which amount, however, fell short by some £2000 of the total expenses of the patients sent into the hospital under the scheme. The size of the waiting list of patients for admission he connected with the contributory scheme; the local secretary in every parish in the county had made known the work of the hospital, and there was a constant stream of applications for admission. The chairman of the finance committee pointed out that the hospital was erected within the memory of many of those present at a cost of £57,116. The income had increased from £9755 in 1900 to £50,000 in 1922, and investments had increased during the same period from £77,737 to £120,216. The large overdraft at the bank (£19,000) was caused by the two black years 1919 and 1920, when their expenditure exceeded their income by £24,192. It was in receiving and in most cases restoring 8000 wounded men that the Norfolk and Norwich Hospital incurred the heavy liability which seemed destined for years to stay the further progress of the institution. He thought that this would not have been so if Norwich, the only community in Norfolk which had failed to erect a lasting memorial of the war, had admitted the principle that the hospital was far the most fitting object of its beneficence.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 18TH.

Sale of Useless Disinfectants.

MR. BECKER asked the Minister of Health if his attention had been drawn to the fact that disinfectants totally devoid of bactericidal action were sold to the public; and if he would see that disinfectants so sold and described must comply with a test similar to the one required for the army and navy and other Government departments.—MR. NEVILLE CHAMBERLAIN replied: I have no evidence to show that disinfectants totally devoid of bactericidal action are sold to the public, but I am aware that, judged by certain tests, the disinfectants which are on sale may differ considerably in their bactericidal power. As at present advised, I do not propose to adopt the suggestion in the last part of the question. I understand that advice as to the choice of disinfectants for particular purposes can generally be obtained from the health officers of local authorities.

Panel Practitioners' Remuneration.

MR. TREVELYAN THOMSON asked the Minister of Health whether, in view of the fact that the public generally were primarily affected by any rearrangement of the panel system under the national health insurance scheme, he would appoint a representative committee to inquire into the working of the present system which should include direct representatives of the approved societies and of insured persons; and that he would not sanction any rearrangement of terms before such an inquiry had been made.—MR. NEVILLE CHAMBERLAIN replied: As a result of discussion with the Insurance Consultative Council, it is not now contemplated that any general rearrangement of the insurance medical system will be made. Certain modifications of the terms of services have been recommended by the council, but these will not involve any substantial change in the present system. No case has, in my view, been made out for a separate investigation of the kind suggested by the hon. Member, which would complicate the negotiations and so tend to delay a settlement.

MR. THOMSON: Is the right hon. gentleman aware that the Consultative Council, in the opinion of many approved societies and insured persons, does not adequately represent their point of view?—MR. CHAMBERLAIN: There is no other body that does.

SIR KINGSLEY WOOD asked the Minister of Health whether, in respect of the payment to doctors on the panel list, the Government actuary had advised that at the end of the existing agreements it would be no longer possible for the present payment of 2s. 6d. per patient per annum to be made from the funds of the approved societies; and whether he proposed that any further contributions should be made from State funds in connexion therewith.—MR. CHAMBERLAIN replied: The Government actuary has given no advice on the matter referred to by my hon. friend subsequent to that contained in his report on the Financial Provisions of the National Health Insurance Act, 1922 (Cmd. 1631), a copy of which I am sending to my hon. friend. The answer to the latter part of the question is in the negative.

Vaccination and Small-pox.

MR. SCRYMGEOUR asked the Minister of Health whether his medical advisers had made any report in regard to the higher fatality rate which occurred amongst vaccinated, as compared with unvaccinated, cases of small-pox in England and Wales last year.—MR. NEVILLE CHAMBERLAIN replied: The answer is in the negative. I may, however, say that 24 of the 27 deaths from small-pox in England and Wales last year occurred in the outbreak of virulent small-pox in London and the neighbourhood, and that in this outbreak the fatality rate was 23.7 per cent. in the case of vaccinated persons and 60 per cent. in the case of unvaccinated persons. The age of the youngest vaccinated person who died from small-pox was 43.

Women Insurance Inspectors.

MR. MOSLEY asked the Minister of Health when it was proposed to reorganise the inspectorate of the insurance department in order to carry out Clause 2 of the Resolution of the House of Commons on August 5th, 1921, that women should hold posts in the Civil Service under the same regulations as govern the classification, and, in so far as regards status and authority, other conditions of service for men; and in what respect the duties of the women inspectors of the insurance department differed from those of the men inspectors other than that men and women deal mainly with workers of their own sex; and whether, seeing that the interests of the insured women of this country were adequately safeguarded by the present organisation of the women

inspectorate, he would consider reorganising the male inspectorate on an equally economical basis, and thus saving the salaries of the men divisional inspectors.—MR. NEVILLE CHAMBERLAIN replied: The duties of the men inspectors are to secure compliance with the Insurance Acts and to act within their districts as the local executive officers of the insurance department of the Ministry. The women inspectors are employed in the inspection of trades where women are mainly employed and in inquiries as to the benefits of insured women. The inspectorate is organised with strict regard to the requirements of the work, and it is not proposed to make any change in the organisation at the present time.

The London Ambulance System.

MR. BRIANT asked the Minister of Health if he would nominate a committee to inquire into the adequacy and organisation of the ambulance system for London.—MR. NEVILLE CHAMBERLAIN replied: I will make inquiries with regard to this matter, and if it should appear that any advantage is likely to result, I shall be happy to summon a conference of the various authorities concerned to consider the whole question.

Voluntary Hospitals Grants.

MR. GILBERT asked the Minister of Health whether the whole of the £500,000 Parliamentary grant in aid of the voluntary hospitals had now been distributed; whether the grant would be repeated; and whether the Hospitals Commission, when the present grant had been distributed, would, in accordance with its reference, cease to act.—MR. NEVILLE CHAMBERLAIN replied: I understand that up to the present the Commission have distributed £421,033. The Commission have not yet made any recommendation as to the necessity for any future grant or for the continuance of some central body to act as a link between the local voluntary hospital committee.

Bacteriological Examination of Milk.

SIR JAMES REMNANT asked the Minister of Health whether his attention had been drawn to the representations of the Society of Medical Officers of Health, the British Medical Association, and others relative to the inadequate charges authorised by the Ministry for the bacteriological examination of the various grades of milk under Statutory Rules and Orders, 1922, No. 1332, Dairy England, and Circulars of Ministry of Health, No. 335, August 28th, 1922, and 356, Dec. 12th, 1922, necessitating, as it did, the services of a skilled bacteriologist and the provision of the necessary material; and would he inquire into this.—MR. NEVILLE CHAMBERLAIN replied: I have received representations as to the fee proposed for the examination of samples of milk which are required under the Orders referred to in the question. I am advised that the work in question is of a routine character, and that the cost per sample should not exceed the amount which has been suggested where arrangements are made at a laboratory for dealing with the considerable volume of samples which may be expected to result from the scheme of milk-grading.

Venerical Disease in the Army.

SIR SYDNEY RUSSELL-WELLS asked the Under Secretary of State for War the rates of venerical disease admissions per 1000 per annum in 1921 and 1922 of the British Army of the Rhine, the British Army in Constantinople, and the British Army in the United Kingdom, respectively; whether there was any difference and, if so, what in the methods of medical prophylaxis adopted in the different armies; and whether any steps were taken to prevent soldiers attending civil venerical disease clinics in the United Kingdom in plain clothes.—Lieut.-Colonel GUINNESS replied: The ratios per 1000 are:—

British Army of the Rhine	1921 .. .	212.34
	1922 .. .	213.53
British Army in Constantinople ..	1921 .. .	228.48
	1922 .. .	83.41
United Kingdom	1921 .. .	40.26
	1922 .. .	33.66

The same methods of medical prophylaxis are followed in each of these commands. As regards the last part of the question, there is no prohibition on the attendance of men at such clinics, but they would probably find regular attendance, whether in plain clothes or uniform, difficult in practice.

THURSDAY, APRIL 19TH.

Conditional Pensions.

MR. TOM WILLIAMS asked the Minister of Pensions how many ex-Service men were in receipt of conditional pensions whose injuries were received in the years 1915, 1916, 1917, and 1918, and whose pensions had remained stationary for four years.—Major TRYON replied: The records of my department are not kept in such form as to disclose the particulars asked for, but the great majority of all cases of injury in which pension has been current for four years or more have either received final awards or are about to be considered for final awards.

Special Treatment of Heart Cases.

Mr. BECKER asked the Minister of Pensions if his Ministry proposed to remove ex-soldier and ex-sailor heart cases from special heart treatment hospitals and clinics and place these men under panel practitioners who were not heart specialists.—Major TRYON replied: The answer is in the negative. So long as the condition requires institutional treatment it will be provided. Treatment under the man's panel doctor is only recommended when the case is within the competence of the average medical practitioner.

Medical Classification of School-children.

Mr. CECIL WILSON asked the President of the Board of Education the number of children already examined by the medical staffs and certified as mentally defective for whom no accommodation was available; and the number of children reported as mentally defective who still required to be specially examined by school medical officers.—Lord EUSTACE PERCY (Parliamentary Secretary to the Board of Education) replied: My latest statistical information on this subject is contained in Appendix F of the Chief Medical Officer's Report for 1920. It would appear that in 293 areas for which data have been tabulated, there were, approximately, 28,000 children reported as mentally defective in the category of "feeble-minded." This includes children under the Local Control Authority. The total accommodation provided in certified special schools for educable mentally defective children is over 16,000. With regard to the last part of the question, the only definite information I have is that furnished by the medical officers themselves.

Statutory Salary for Health Visitors.

Mr. ALBERT BENNETT asked the Minister of Health whether he would consider the whole question of appointing or suggesting a statutory salary for health visitors so as to avoid the under payment which was too frequent at the present moment.—Mr. NEVILLE CHAMBERLAIN replied: The general question of the salaries of health visitors is receiving my consideration.

Workshops for Blind Persons.

Mr. GROVES asked the Minister of Health the number of workshops for the blind which have been opened in connexion with the operation of the Blind Persons Act, 1920; and whether the utilisation of the charitable institutions had given the help that his department anticipated.—Mr. NEVILLE CHAMBERLAIN replied: Since the passing of the Blind Persons Act, 1920, four new workshops have been opened and considerable extensions have been made to six existing workshops. The answer to the latter part of the question is in the affirmative.

FRIDAY, APRIL 20TH.

Prohibition of Liquor Traffic.

Mr. SCRYMGEOUR moved the second reading of the Liquor Traffic Prohibition Bill. He said that if drink was an enemy they had no right to compromise with it. Those who were engaged in the drink trade paid the penalty. They died off more rapidly than people engaged in other business, and they had to pay a higher premium for life insurance.

Dr. SALTER, in seconding the motion for the second reading of the Bill, said he doubted if the methods of the machinery of the Bill were good. The real case for prohibition was scientific and sociological. The House had taken strong action against dangerous drugs because they tended to anti-social actions. The position in regard to the drug alcohol was exactly the same. The first effect of alcohol on the system was to diminish the higher power of self-control. He asked how many Members of the House could say that they had got a clean bill of ancestral mental health, how many among the general population could say that they had not got lurking in their system some taint inherited from a progenitor who was eccentric, unstable, crotchety? He knew distinguished men in his own profession who showed all through their lives self-control, complete mental stability, and when they were 50 or 55 succumbed to the alcoholic habit. Undoubtedly there were a large number of persons who were as susceptible to alcohol as the majority of people were to morphia and cocaine—that was, they could not help becoming slaves to the drug once they started taking it.

Sir A. HOLBROOK moved the rejection of the Bill. He said that prohibition in America had produced more corruption than any law introduced into that country. There was more drunkenness now in America than there had ever been. He claimed to be a temperance reformer, but the way to produce temperance was to see that the liquor shops were not the confined, ill-ventilated places they were to-day, but to get them wide open places on the continental café system. If they destroyed the drink traffic they would have to find some other means of taxation to balance the loss. He was in favour of a restriction on the sale of spirits, but he was opposed to a restriction on the sale of beer. His main objection to the Bill was that it infringed the British idea of freedom.

Viscount CURZON, in seconding the motion for rejection, said that legislation which would lead to evasion and manufacture criminals as this Bill would do was bad.

Dr. CHAPPLE said that total abstainers had an advantage in life expectancy over moderate drinkers of 22.3 per cent. He was against prohibition by Act of Parliament, but not against it by local option.

On a division the Bill was rejected by 236 votes to 14—majority against, 222.

Education Medical Service.

Sir JOHN LEIGH asked the President of the Board of Education whether the promised close co-operation between his department and the Ministry of Health was now effective; whether the school medical officers were working with medical officers of health without any serious friction; and how many medical staff he was retaining in addition to those at the Health Ministry.—Lord EUSTACE PERCY replied: The answer to the first part of the question is in the affirmative, and also the answer to the second, so far as I am aware. The number of medical officers engaged exclusively at the Board of Education is seven.

MONDAY, APRIL 23RD.

Medical Herbalists Bill.

Lieut.-Commander KENWORTHY presented a Bill to provide for the registration of medical herbalists, which was read a first time.

Membership of the Board of Control.

Mr. AMMON asked the Minister of Health whether he would consider the advisability of appointing to the Board of Control on the Mental Nursing Service a representative from the joint conciliation committee of the Mental Asylum Workers' Union and the Mental Hospitals' Association, which represented a great majority of the asylums authorities.—Mr. NEVILLE CHAMBERLAIN replied: I assume that the hon. Member is referring to the committee which was appointed by the Board of Control in March, 1922, to report upon the nursing service in county and borough mental hospitals. This committee hope to report shortly, and the Board of Control do not consider that at this stage it would be desirable to add to its membership. The joint conciliation committee have already been informed that the nursing committee would be willing to consider a statement of any views which the Mental Hospitals' Association and the National Asylum Workers' Union would desire to put before them.

Functions of the Board of Control.

Mr. AMMON asked the Minister of Health whether, in view of the fact that the Board of Control had no legislative power and cannot enforce their recommendations on the visiting committees, he would consider the advisability of abolishing the Board of Control and transferring its present functions to the Ministry of Health.—Mr. NEVILLE CHAMBERLAIN replied: The powers of the Board of Control and their relation to local authorities and to Parliament were fully considered when the Board was established, and I do not consider that there are adequate grounds for initiating measures to alter the present arrangements.

Practitioners and Panel Service.

Sir KINGSLEY WOOD asked the Minister of Health whether his attention had been drawn to a communication recently issued by the British Medical Association to doctors on the panel lists, entitled Organisation of Insurance Practitioners in consideration of, and in the event of, a refusal of the terms offered by the Government for National Health Insurance work, which contemplated a refusal in certain contingencies to carry on the panel service; and what action he proposed to take in such a contingency.—Mr. NEVILLE CHAMBERLAIN replied: The communication to which the hon. Member refers is understood to be a confidential circular issued only to insurance practitioners, and I have no official knowledge of it. Negotiations with representatives of insurance practitioners with a view to the revision of their terms of service have now begun, and the prospects of a successful issue would not be enhanced by any statement at this stage as to the steps which the Government might find it necessary to take in a contingency which I have every reason to hope will not arise.

Sir KINGSLEY WOOD asked the Minister of Health whether he was aware that the Government actuary advised in 1922 that at the end of the existing agreements with doctors on the panel it would be no longer possible for the present payment of 2s. 6d. per patient per annum to be continued to be paid from approved societies' funds; and whether he had given any further report or advice since that date.—Mr. NEVILLE CHAMBERLAIN replied: No, Sir. In reporting on the financial provisions of the National Health Insurance Bill of 1922, the Government actuary did not give the advice which the question suggests, but merely indicated that his opinion that the charge proposed by the Bill could be safely borne applied strictly to the proposals of that measure and should not be held to imply that larger or more pro-

tracted additional charges could be borne by societies. No further report or advice has since been received from him on the subject.

Compensation for Faulty Vaccination.

Mr. ROBERT YOUNG asked the Minister of Health whether, seeing that the operation of vaccination was in many cases enforced, he would see that where untoward results ensued compensation for loss of health and employment wages would be paid, seeing that vaccination was *prima facie* in the interests of the community.—Mr. NEVILLE CHAMBERLAIN replied: The Vaccination Acts do not provide for the compulsory vaccination of adults, and I am advised that there is no statutory authority for the payment of compensation out of the rates in the circumstances to which the hon. Member refers.

TUESDAY, APRIL 24TH.

Ex-Service Men and Deafness.

Captain BERKELEY asked the Minister of Pensions whether his attention had been drawn to the serious difficulties of ex-Service men deafened by the war; whether he was aware that this disability imposed a handicap upon a man seeking employment fully as great as that suffered by a man who had lost his sight; and whether he could see his way to make a special effort on behalf of these men, similar to that already made on behalf of blinded soldiers, both with regard to training for and the obtaining of employment.—Captain CRAIG replied: My right hon. friend is not prepared to admit that the rate of 70 per cent. given under the Royal Warrant for total deafness compares unfavourably with the 100 per cent. rate given for total blindness. The general question of training and employment for ex-Service men is one for the Minister of Labour, but I understand that men who were prevented by deafness due to war service from resuming their pre-war occupation, and who applied to that department, have been trained in some other suitable form of occupation.

Medical Diary.

SOCIETIES.

THE ROYAL SOCIETY, Burlington House, W.

THURSDAY, May 3rd, 4.30 P.M.—*Papers to be read*:—F. A. E. Crew: Studies in Intersexuality. I. A Peculiar Type of Developmental Intersexuality in the Male of the Domesticated Mammals. (Communicated by Prof. R. C. Punnett.) *Papers to be read in title only*:—E. J. Morgan and J. H. Quastel: The Reduction of Methylene Blue by Iron Compounds. (Communicated by Prof. F. G. Hopkins.) C. F. Cooper: The Skull and Dentition of *Paraceratherium bugtiense*. A Genus of Aberrant Rhinoceroses from the Lower Miocene Deposits of Dera Bugti. (Communicated by Dr. A. Smith Woodward.) W. L. Balls, D.Sc.: The Determiners of Cellulose Structure as seen in the Cell Walls of Cotton Hairs. (Communicated by Dr. F. F. Blackman.) I. de B. Daly: The Influence of Mechanical Conditions of the Circulation of the Electro-cardiogram. (Communicated by Prof. E. H. Starling.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, May 1st.

ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)

Annual General Meeting:

Election of Officers and Council for 1923-24.

Cases: Mr. P. Bernard Roth: Case of Osteitis Deformans.

Other cases will be shown.

Wednesday, May 2nd.

SURGERY: at 5.30 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

Paper:

Mr. P. Lockhart-Mummery: The Technique of Resection and Anastomosis of the Colon for Tumour.

Thursday, May 3rd.

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

Specimens:

Mr. L. C. Rivett: (1) Calcified Tumour of the Recto-vaginal Septum. (2) A Ruptured Hematoma of the Ovary with Extensive Intra-peritoneal Hemorrhage.

Papers:

Mr. L. P. Pugh: Investigation into Ovarian Disease in Cows.

Dr. Archibald Donald: The Clinical Aspects of Adenomyomata of the Female Pelvic Organs.

Friday, May 4th.

LARYNGOLOGY: at 4.45 P.M. (Cases at 4 P.M.)

Annual General Meeting:

Election of Officers and Council for 1923-24.

Cases and Specimens will be shown by Sir StClair Thomson, Sir James Dundas-Grant, Dr. H. Smurthwaite, Sir William Milligan, and others.

Saturday, May 5th.

THERAPEUTICS AND PHARMACOLOGY.

Provincial Meeting at Cambridge in the Pharmacology Laboratory, Downing-street.

Will Members able to attend send in their names not later than April 27th to the Hon. Secretary, Dr. J. H. Burn, National Institute for Medical Research, Hampstead, N.W. 3.

Saturday, May 5th, and Sunday, May 6th.

BALNEOLOGY AND CLIMATOLOGY.

Provincial Meeting at Oxford.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.

MONDAY, April 30th.—5 P.M., Prof. Shattock: Spina Bifida, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, April 30th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 12 noon, Mr. Simmonds: Applied Anatomy. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 12 noon, Dr. Burrell: Chest Cases. Dr. Pritchard: Visit to Medical Wards.

WEDNESDAY.—10 A.M., Mr. Banks-Davis: Throat, Nose, and Ear. 11 A.M., Mr. Simson: Gynæcological Demonstration. 2 P.M., Mr. Gibb: Eye Department.

THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. MacDonald: Genito-Urinary Department. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Dr. Flett: Radiology. 3 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's General Hospital, Tottenham.

WEDNESDAY, May 2nd.—8 P.M., Dr. Browning Alexander: Medical Aspects of Enlarged Thyroids.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Demonstration of Clinical Cases at 3.30 P.M.

MONDAY, April 30th.—Dr. J. Browning Alexander: Medical.

TUESDAY.—Mr. Howell Evans: Surgical. (3 P.M.)

WEDNESDAY.—Mr. Norman B. B. Fleming: Eye Cases.

THURSDAY.—Mr. H. W. Carson: Surgical.

FRIDAY.—Dr. C. E. Sundell: Diseases of Children.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

TUESDAY, May 1st.—5.15 P.M., Dr. Millais Culpin: Instinct and Emotion.

FRIDAY.—5.15 P.M.: Dissociation.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.

TUESDAY, May 1st.—5 P.M., Prof. A. L. McIlroy: Maintenance of Physiological Conditions during Pregnancy.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, May 3rd.—4 P.M., Dr. Donald Paterson: Intestinal Disturbances in Infancy.

LONDON LOCK HOSPITAL, 91, Dean-street, W.1.

MONDAY, April 30th.—5 P.M., Mr. C. Gibbs: Anterior and Posterior Urethritis.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.

THURSDAY, May 3rd.—4.30 P.M., Prof. W. Bulloch: Spallanzani's Researches on Respiration.

INFANTS HOSPITAL, Vincent-square, S.W.1.

MONDAY, April 30th.—6 P.M., Dr. Eric Pritchard: General Principles of Feeding and Dietetics as Applied in Breast Feeding.

THURSDAY.—6 P.M., Artificial Feeding.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, May 1st.—4.15 P.M., Dr. T. H. Oliver: Malignant Endocarditis.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).

THURSDAY, May 3rd.—3.30 P.M., Dr. N. Neild: Endocrinology.

FRIDAY (at Dorchester).—Prof. Walker Hall: Normal and Acquired Resistance to Disease.

Appointments.

HIGGINS, T. S., M.D. Lond., D.P.H., has been appointed Medical Officer of Health and Public Health Lecturer at Capetown. WILLIAMSON, O. K., M.D. Camb., F.R.C.P. Lond., Consulting Physician to City of London Hospital for Diseases of the Heart and Lungs.

Paddington Green Children's Hospital: OLIVER, T. C., M.R.C.S., L.R.C.P. Lond., House Physician; DICK, B. M., M.B., Ch.B. Edin., House Surgeon.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—H.S. £175.
 Birkenhead Borough Hospital.—Jun. H.S. £150.
 Brighton County Borough Sanatorium.—R.M.O. £300.
 Cambridge, Addenbrooke's Hospital.—H.S. £130.
 Chelsea Hospital for Women, Arthur-street, S.W.—S.
 City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £125.
 Croydon, County Borough of.—Asst. M.O. £700.
 Elizabeth Garrett Anderson Hospital, Euston-road.—Asst. Phys.
 Georgetown Public Hospital, British Guiana.—Radiographer. £350.
 Gloucestershire Royal Infirmary.—Hon. Radiologist.
 Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Reg. £100.
 Hospital for Sick Children, Great Ormond-street, W.C.—Clin. Asst. M.O. in Venereal Dept. £1 ls. per visit.
 Hull Royal Infirmary.—Hon. P. and Hon. S.
 Leicester, North Evington Poor-law Infirmary.—R.M.O. £300.
 Liverpool, Royal Southern Hospital.—Hon. Asst. P.
 Maidstone, Kent County Ophthalmic Hospital.—H.S. £250.
 Manchester, Ancoats Hospital.—Surg. Reg. £100.
 Manchester Ear Hospital, All Saints.—Pathologist. £25.
 Manchester Royal Infirmary.—Radiological Registrar. £250.
 Middleser Hospital, W.—Radium Officer. £300.
 Mount Vernon Hospital for Tuberculosis, &c.—Surg. Laryngologist.
 Norwich, Norfolk and Norwich Hospital.—H.S. £150.
 Nottingham City Asylum.—Jun. A.M.O. £100.
 Votts County Council.—Female Asst. Maternity and Child Welfare M.O. £500.
 Prison Medical Service.—M.O. £300.
 Redhill, Surrey, Royal Earlswood Institution for Mental Defectives.—Jun. Asst. M.O. £250.
 Richmond Royal Hospital.—Asst. H.S. £100.
 Rotherham Hospital.—Sen. H.S. £250.
 Royal Alexandra Hospital for Sick Children.—H.S. £120.
 Royal Chest Hospital, City-road, E.C.—P.
 Royal Ear Hospital, Dean-street, Soho.—Hon. H.S. Hon. Anesth.
 Royal Northern Hospital, Holloway, N.—H.S.'s. £100.
 St. George's Hospital, S.W.—P. Also Asst. P.
 St. Helens Hospital, Lancashire.—R.M.O. £250.
 Salford Union Infirmary, Hope, Pendleton, near Manchester.—First Asst. Res. M.O. £100.
 Scarborough Union, &c.—Dist. M.O., &c. £90.
 Sheffield Royal Hospital.—Asst. Cas. O. £150.
 South Mimms, Barnet, Clare Hall Sanatorium.—Asst. M.O. £350.
 Throat Hospital, Golden-square, W.—Hon. Registrars. Also Hon. Asst. S's.
 University College Hospital, Gower-street, W.C.—Holiday Surg. Reg. £2 2s. weekly. Asst. Radiologist. £300. Res. M.O. £150.
 West London Hospital, Hammersmith-road, W.—Hon. Med. Radiologist.
 The Chief Inspector of Factories, Home Office, Whitehall, S.W., announces the following vacant appointments: Abercraive (Brecon); Sherburn (York E. R.).

Notes, Comments, and Abstracts.

HUTCHINSON THE NATURALIST; SUTTON THE PHILOSOPHER; HUGHLINGS JACKSON THE SEER.¹

By R. HINGSTON FOX, M.D. BRUX., M.R.C.P. LOND.

THE Hunterian Society was founded in 1819, 26 years after the death of John Hunter, by Sir William Blizard, who was then 75 years of age, and others. Blizard was president of the Society for three years, and was otherwise remarkable for having remained on the active staff of the London Hospital as a surgeon for 50 years until he retired at the age of 90. The early years of the Society were the era of Hunter's pupils, from whom nearly all the early presidents of the Royal College of Surgeons were drawn. William Clift, the pupil of Hunter and conservator of the museum, was one of the Fellows of the Society. Events moved rapidly in the medical world in the Society's early years.

The Stethoscope.—Anæsthetics.—Antiseptics.

The stethoscope, first used by Laennec in 1819, gradually gained adherents, although it was many years before the art and science of auscultation were built up in the face of a good deal of conservative prejudice. Thus Benjamin Robinson, a physician to the London Hospital in 1823, stated that the stethoscope "did not convey much." The early instruments were very cumbersome and heavy (one such was exhibited). With the increasing knowledge of auscultation came a knowledge of phthisis and pneumonia and a great advance in thoracic surgery. Empyemata were diagnosed and opened; Dr. Thomas Davies, an early president, had known recovery to follow the liberating of eight pints of matter from the chest. The slow progress made by this instrument could be gauged by the fact that the Hunterian orator of 1832 was led to incite his hearers to the use of the stethoscope.

In contrast to this slow progress *anæsthesia* made rapid bounds into favour. Ether was first used in America by Morton, the dentist, and Warren, the surgeon, in 1816; Sir James Simpson, of Edinburgh, introduced chloroform within a year. Liston performed an amputation through the thigh under ether anæsthesia at University College Hospital in 1817, and within 18 months Curling stated that thousands of operations had been performed with the aid of anæsthetics. The minutes of the Society at the period showed, however, that there was a spirit of criticism even of this advance in medicine; the occurrence of post-anæsthetic vomiting came in for a good deal of unfavourable comment. While the benefits to surgery of anæsthesia were now very obvious, it must not be thought that pre-anæsthetic surgery was unskillful; on the contrary, surgery had attained a high level without this aid.

Lister first employed carbolic acid in 1865, but did not publish his first work on *antiseptics* until two years later. The dangers of sepsis at this period might be estimated from the fact that Maunder had on one occasion advocated the tying of the femoral artery in a case of compound fracture involving the knee-joint "to prevent the occurrence of acute traumatic arthritis." This treatment was adopted, and it was stated, with success. As in the case of the stethoscope, there was a good deal of opposition to the antiseptic regime, and often with good cause, for fatal carbolic gangrene was very common before the dangers of this antiseptic were fully understood. Couper commented favourably on carbolic acid, but Bryant, of Guy's Hospital, writing on "traumatic fever and pyæmia," said that antiseptics did not prevent these disorders. The Hunterian orator of 1876 spoke sarcastically of the "fungoid origin of disease" and of the "disgusting odour of carbolic acid." It was not until 1880 that carbolic acid was tested and proved and the antiseptic regime generally came into vogue.

Distinguished Fellows of the Society in its Earlier Years.

These included Sir Richard Owen, son-in-law of Clift, most famed as a zoologist. Richard Bright, the president in 1815, was an unsurpassed observer of disease. One of the governors of the London Hospital had resented having Bright as his neighbour at the hospital dinner on the ground that Bright was the "inventor of a disease." Dr. Robert Barnes, the obstetrician, was another president; he was distinguished for his fine command of English. Sir Andrew Clark, a dramatic teacher, acquired one of the largest practices ever known, and reaped a large harvest. It was stated that he once received a fee of 5000 gns. for a journey as a consultant to the South of France; being a generous man he gave the greater part of this fee to hospitals.

¹ Abridged from an address delivered at the annual general meeting of the Hunterian Society on April 23rd, 1923.

Births, Marriages, and Deaths.

BIRTHS.

CAREY.—On April 16th, at Ravenslea, Brislington, the wife of R. S. Carey, M.R.C.S., L.R.C.P., of a daughter.
 LAPAGE.—On April 17th, at 194, Wilmslow-road, Withington, Manchester, the wife of C. P. Lapage, M.D., F.R.C.P., of a son.
 SOUPER.—On April 17th, at Victoria-street, Aberdeen, the wife of Dr. H. Ross Souper, of a son.

MARRIAGES.

GRANGE—NUTKINS.—On April 19th, at St. John's Church, Putney, Frank Arthur Grange, M.B., B.S., M.C., to Yvonne Vera, daughter of the late William George Nutkins and granddaughter of Alfred Saunders, of Putney.
 HILLMAN—MILLER.—On April 23rd, at Christ Church, Lancaster-gate, Oscar Stanley Hillman, M.B., F.R.C.S., to Ethel Florence Miller, daughter of Mrs. Archie Cameron, of Calcutta.
 KINGDON—LEE.—On April 18th, at St. Pancras Church, W.C., Alfred Thomas Lock Kingdon, M.R.C.S., L.R.C.P., to Kathleen Adelia, only daughter of Mr. and Mrs. Edward Lee, of Digboi, Assam.

DEATHS.

ARONS.—On April 20th, at a nursing home, London, Dr. Jervois Aarons, of Harley-street, W.
 ONES.—On April 15th, at a nursing home, Salisbury, James Evan Jones, M.R.C.S., L.R.C.P., of Ludgershall, Wilts. (Interred New Quay, Cardiganshire.)
 POTTER.—On April 16th, at a nursing home in London, James C. Potter, M.D., F.R.C.S. Edin., aged 54 years.

¹ A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Hutchinson the Naturalist.

Jonathan Hutchinson, surgeon to the London Hospital from 1859 to 1883, was a man of varied interests and remarkable depth of vision. It was said of him by a friend that "he was the best general practitioner I ever knew." He was best known for his work on syphilis, which he first described in its varied stages and compared to a specific fever, and especially congenital syphilis. Hutchinson's "triad" of congenital syphilitic lesions, the teeth, corneal affections, and labyrinthine disease, was still referred to. But this was not a sufficient field for his energy. Skin diseases were all known and described by him so well that to-day there was little to add to his work. He also carried out much careful work on the local origin of cancer and on arthritis and yet found time to carry on a large practice. He was an admirable teacher, though without the large manner of Sir A. Clark, and left in the minds of his pupils a clear impression of the main essentials of his subject. In person he was tall and of athletic build with jet black hair; he was a good horseman. His wide interests included zoology, botany, history, and social science; he took a keen interest in museums and founded several. At a dinner given to him at the age of 70 he ascribed much of his success to the fact that he was a member of the Society of Friends, and it might well be that his association with that society was instrumental in forming his simplicity of character and in developing his talent for hard work. He joined many societies in his youth and spoke at their meetings almost daily. Hutchinson was, above all things, an observer of nature, and in this he was a close follower of John Hunter; disease he regarded as nature gone astray.

Sutton the Philosopher.

Henry Gawen Sutton, physician to the London Hospital from 1867 to 1891, was a thick-set man below middle height, with a large shaggy head; he was most remarkable for his smile which, while not cynical, seemed pitying and was accompanied by a penetrating glance. He was oracular in his speech and wrote very little, but by sheer hard work he acquired a profound knowledge of morbid anatomy. He never appeared to be in a hurry and spent many hours daily in the wards and even more in the post-mortem room. He thought much on "ease and disease," and was fond of speculating on "Nature's way." His philosophic habit of mind was well attuned to the long walks he used to take in the country, and he once described how he felt the rhythm of a brook impress itself upon his own life. His greatest weakness was in his belief in the value of alcohol both for his patients and himself, and his consumption of port could hardly have benefited his gout. He died before reaching the age of 60, leaving to posterity little published work other than his paper with Sir William Gull on arterio-sclerosis. Yet he did much to advance morbid anatomy and had a profound influence on a few pupils.

Hughlings Jackson the Seer.

John Hughlings Jackson, the founder of modern neurology, was "discovered" by Hutchinson, who persuaded him not to abandon medicine. His first published work on nervous disorders was full of wild speculations based on Owen's theory of vertical clefts, but later he became a close adherent of scientific truth based on observation. When the functions of the brain were only beginning to be understood Jackson carried the idea of "centres" forward step by step from his observations on disease; he distinguished between "discharging" and "destroying" lesions, and traced the descent of "representation and control" from level to level in the brain and spinal cord. With the ophthalmoscope he appeared to see into the brain. With reference to his researches on aphasia, it was interesting that neurologists were now coming back to his original views. His written communications were brief and difficult to understand as they were "peppered with explanatory phrases and footnotes," so that for a time he got little hearing. In 1873, however, the experimental work of Ferrier and others abundantly proved the truth of Jackson's theories. A shy, retiring, and contemplative man with a weak voice, he was helped perhaps as much by his sense of humour as by his power of hard work.

INFANT WEIGHING MACHINES ON HIRE.

THE cost of an infant weighing machine sufficiently accurate for use in test feeds is prohibitive for many households, with the result that breast-feeding may be discontinued in cases where it might well be supplemented. It is not generally known that suitable infant weighing machines, costing £6 15s. to buy and said to be sensitive to 2 drachms, may be hired from Mr. C. Pollard, of 130, York-road, London, N. 1, on the following terms: Deposit of £3 on or before delivery in London, 10s. for hire for the first month, and 5s. for each month or part of a month after. Delivery and collection is free in London except in cases where a scale is wanted immediately, a charge of 2s. 6d. is made for sending a machine by special messenger. If the scales are required outside London the hirer pays carriage both ways.

THE MILLIWATT ELECTRIC HEATING PAD.

WE have received from Mr. R. T. Durran, of 76, Victoria-street, London, S.W. 1, an electric heating pad which possesses certain advantages of convenience and economy, and which can be used in many cases where heat is required for either therapeutic purposes or personal comfort. The electrical element consists of fine resistance wires enclosed in asbestos, this again being encased in linen, over which is a flannel material and the whole fits into a white washable slip. The heating element, which can be adapted to various voltages, is connected by a flexible cord to a lamp-socket or wall-contact of the electric light main. A rotary switch attached to the connecting cord allows the heat to be adjusted according to requirements and any danger of over-heating is guarded against by a "cut out," which switches the current off if the temperature rises above 185° F., while the current is automatically switched on again as soon as the pad begins to cool. In addition to the Roman figures on the switch indicating "current off," "mild heat," "medium heat," and "greatest heat," there are raised bosses which enable adjustment to be made in the dark by the sense of touch alone. The pad is flexible and nearly as soft as an ordinary cushion. The apparatus is admirably adapted for the application of continuous heat to any part of the body where it is required.

THE UNIVERSITIES' YEAR BOOK FOR 1923.

WE have received from Messrs. G. Bell and Sons a copy of the Year Book of the Universities of the Empire, 1923, edited by Mr. W. H. Dawson, and published for the Universities Bureau of the British Empire (692 pages; price 7s. 6d.). Within the compass of a handy and attractive volume Mr. Dawson has condensed, with conspicuous success, the essential information contained in the calendars of the 66 universities of the British Empire. These calendars, he tells us, occupy several yards of shelf in the library of the Universities Bureau. Chapters introductory to the several sections give such information regarding their history, regulations, and practice as the universities share in common. Each section comprises three parts (1) a directory of the officers and members of the teaching staff; (2) general information of equipment, degrees, scholarships, and fees; and (3) events of outstanding interest during the past academic year. Appendices contain the regulations and conditions governing admission to various professions and careers. The section dealing with medical and dental qualifications and studies occupies 16 pages and gives the several medical qualifications with a useful précis of the conditions of registration. The Royal Colleges of England, Scotland, and Ireland also receive notice. An interesting chapter in the appendix gives an account of the conference of Swiss and British Universities held at Basle last August when the mutual recognition of University examinations and degrees was discussed and considerable progress made towards reciprocity. Not the least valuable part of the Year Book is an index of 46 pages which must contain nearly 10,000 names to which reference is made in the text.

PUBLIC HEALTH IN JAMAICA AND BAHAMAS.

Jamaica.—The estimated population at the close of 1922 was 871,114. The birth-rate for the year was 34.9 per 1000 and the death-rate 28.3 per 1000. In Kingston, the capital, the principal causes of death were: Diarrhoea and enteritis, 14.8; atrophy, icterus, and scleroma of the new born, 8.5; phthisis, 8.2; enteric fever, 7.1; pneumonia, 6.8; heart disease, 4.6; chronic Bright's disease, 3.7; cerebral hæmorrhage, apoplexy, 3.3. Matters in connexion with the health and sanitation of the island have been receiving for some time past the earnest attention of the Government and active steps were taken during 1921 for dealing with such matters. The Rockefeller Foundation continued the operations in Jamaica in connexion with the treatment of hookworm, and the United Fruit Company carried on the system for medical attendance on their employees. Both these organisations have materially contributed to improve general health conditions in the island. It is in contemplation to appoint a senior sanitary medical officer and to obtain for the colony a general sanitary service. The epidemic of alastrim, or Kafir milk-pox, which occurred during 1920, still existed in 1921, but to a milder extent.

Bahamas.—The estimated population on Jan. 1st, 1922, was 56,151. The birth-rate for 1921 was 38.2 per 1000, and the death-rate 20.5 per 1000. The public health was no so good as in the previous year. Typhoid was more prevalent than usual, and there was a very persistent and prolonged epidemic of dengue fever, which appears also to have been very fairly common all over Florida. The rainfall for the year was 46.83 inches. The General Hospital (originally established in 1809 as a poor-house) comprises the hospital proper, infirmary, dispensary, lunatic asylum and leper wards. During the year there were 749 admissions, making a total under treatment of 993, of whom 37 recovered, 172 were relieved, 15 unchanged, and 169 died.

PUBLIC HEALTH IN EGYPT.

Annual Report for 1920.¹

OWING to the administrative changes that have taken place in Egypt, and pending the reorganisation of the Department of Public Health, it was thought advisable "to limit the activities of the administration to consolidation of the public health advances already made, and to leave the adoption of future lines of progress to a time when it will be possible with greater certainty to initiate fresh developments in accordance with the subsequent definition of future policy." Two matters, however, had to be dealt with without delay. Unqualified dental practice "was gradually becoming a serious public danger" and is no longer allowed, but exception is made for such practitioners who had been actually in continuous practice for at least ten years, who were admitted to a modified examination; 193 out of 218 candidates passed this test satisfactorily. The other matter was the occurrence of anthrax, traced to the use of shaving brushes imported from Japan. A special law was passed (No. 21 of 1920) forbidding the admission of all shaving brushes unless accompanied by certificates of disinfection from the competent authority in the country of manufacture. Since cessation of hostilities considerable progress in sanitary works has been made by draining marshes and ponds which had been a danger to public health. Moreover, owing to the generous aid of several notables of the country there has been an increased provision of hospitals and medical relief generally; these are, however, still inadequate for the needs of the population. Even in Cairo itself there is no maternity hospital. During the war (1914-19) as many as 44,636 sick and wounded were treated in the Egyptian Government hospitals under the Public Health Administration. The need for this has gradually diminished, and in 1920 there were only 407 military cases in these hospitals, the total in-patients numbering 62,493, compared with 64,704 in 1919. The new out-patients, however, increased from 219,573 in 1919 to 274,557 in 1920, and the major operations performed from 9051 to 12,977. The cost of maintenance rose from 183,141 to 230,612 Livres Egyptiennes (L.E.), while the receipts fell from L.E.18,097 to 15,938. Special wards have been opened in several hospitals for the treatment of ankylostoma, bilharzia, and other worm infections, 14,905 such patients having been treated, of whom 13,000 were infected with bilharzia.

The Population of Egypt.

The calculated population for the whole of Egypt in 1920 is stated as 13,066,600, compared with 12,667,370 in the previous year. (In the annual return for 1920, noticed in THE LANCET of Feb. 25th, 1922, the population (1920) was stated as 13,042,400; the same figure is given for that year in the annual return for 1921.) The birth and death ratios were 42.8 and 28.3 respectively, as compared with 38.0 and 30.0 in 1919. The births varied from 29.2 per 1000 in Aswân province to 47.3 in Asyût, 47.9 in the Fayûm, and 48.5 in Minya. In the 20 principal towns the average birth-rate was 45.3, ranging from 38.1 in Benha to 58.4 in Giza. The average infantile mortality was 23.7 per 1000 births; in Cairo and Alexandria the ratios were 25.1 and 21.7; in Giza and Minya, 30.3 and 33.4; in Ismailia, only 13.1. During the year a complete revision was made of the schedule dealing with *Etablissements incommodes, insalubres ou dangereux*, the regulations regarding their control being "tightened up." The total number of such licensed establishments is now 47,350, of which 18,302 are groceries, 4145 dye works, 3440 cooked food shops, and 2821 butchers. Another very important sanitary improvement is the work of filling in or draining *birkas* (marshy pools); of these 29 were dealt with during 1920, with a total area of 75,179 square metres.

Egyptian Hospitals.

Although the hospital "building programme is sadly behind," and new hospitals and extensions due for completion in 1919 are not yet begun, some progress has been made. Messrs. Thos. Cook and Son, who for years had maintained a small hospital at Luxor, have now generously presented the site, building, and equipment to the Egyptian Government; this will be a great boon to the inhabitants of the district, who number about 45,000. In the country generally there are now 24 hospitals, providing 4091 beds; the in-patients totalled 62,493, and the fresh out-patients 274,557 during the year. An anthelmintic annexe has been attached to the Qasr el Aini Hospital in Cairo, and to the hospitals at Qalyub, Benha, and Mansura; 15,085 patients have been treated for ankylostoma and bilharzia infections. At Qasr el Aini the total in-patients treated numbered 12,610 (with 1204 deaths); in the out-patient department there were 282,970 attendances, of which 119,499 were new cases. Of the medical in-patients 8.6

per cent. suffered from tuberculous disease, 7.5 per cent. from ankylostomiasis, 6.2 per cent. from bilharziasis, and 3.8 per cent. from pellagra. In the bilharzia annexe 931 were treated; of these 875 were for bladder infection, and 29 for bladder and intestinal infection. Intravenous injections of 6 per cent. solution of tartrate of antimony were given on alternate days, commencing with 1 gr., then 1½ gr., then 2 gr. on each subsequent occasion. The minimum quantity found to be effective was 13 gr.²; but, speaking generally, from 20 to 25 gr. are required for an adult, administered during three to four weeks; the drug must be continued "until the ova become definitely opaque, not merely inactive."

An instructive table shows the increase in hospital provision and expenditure since 1912. In that year the total accommodation consisted of 2346 beds, the in-patients numbered 38,887, the total cost of maintenance was L.E.77,992, and the annual cost per bed, L.E.33.2; in 1918 the beds numbered 4543, there were 75,002 in-patients, the total cost was L.E.166,218, and the cost per bed L.E.36.5; in 1919 with 4592 beds and 64,704 in-patients, the total cost was L.E.183,142, and the bed cost L.E.39.8. In 1920, the year under report, with 4091 beds and 62,493 patients, the maintenance rose further to L.E.230,612, and the bed cost to L.E.56.3 per annum. The cost per patient per day was 246 milliemes, as compared with 179 in 1919, and 127 in 1912.

Ophthalmia of a very severe type has always been prevalent in Egypt. Since 1903, when Sir Ernest Cassel made his generous gift of L.E.40,000 for the purpose, treatment has been carried out at 20 hospitals in various parts of the country. "The need for ophthalmic treatment has two entirely separate origins": one is trachoma, and the other "a group of acute contagious ophthalmias which are the main cause of blindness in Egypt." About 15,000 patients who sought treatment at the eye hospitals were blind in one or both eyes—that is, about 14 per cent. of the new patients. The people are, however, beginning to recognise the importance of getting treatment for babies and young children; 40 per cent. of the patients were under 15 years of age, and more than 6 per cent. infants under 12 months. A special ophthalmic hospital is urgently required for Cairo. It should be centrally situated, with 100 beds, and be able to treat 2000 out-patients daily in the summer.

Infectious Diseases.

In regard to infectious diseases there was a very striking improvement. The comparative ratios per 1000 of population are not stated, which omission is to be regretted, but the reduced incidence, as compared with 1919, was 40 per cent. for small-pox, 52 per cent. for plague, 78 per cent. for typhus, and 88 per cent. for relapsing fever. The recorded cases of small-pox numbered 3004. Of these 2720 occurred in the first six months of the year. Vaccination has been carried out energetically; during 1919 and 1920 no less than five and a half million people have been vaccinated—more than a third of the total population of the country. In 1919 Cairo had had 1569 cases: in 1920 there were only 171. In Alexandria the cases dropped from 660 to 411. The only provinces where there was an increase were Asyût and Aswân, where the cases numbered 189 and 187, as compared with 147 and 56 in 1919. The fatality, or case-mortality (either of which expressions is to be preferred to "death-rate" in this connexion) was 26.48 per cent., being higher than in any year of the decennium except 1916, when it was 30.35. Typhus fever decreased from 16,970 cases and 5569 deaths in 1919 to 13,279 cases and 3512 deaths. This was partly due to "disappearance of the movement of labour, which during the war years was undoubtedly responsible for the excessive propagation of this disease and relapsing fever which then occurred in Egypt"; also to early notification and increased skill in carrying out de-lousing procedures. Relapsing fever declined from 3276 cases and 598 deaths to 2876 cases and 430 deaths. The cases of plague fell from 877 in 1919 to 462 in 1920, but the fatality (58.2 per cent.) was somewhat higher than in the previous year (53.9 per cent.); 388 cases were bubonic, 41 septicæmic, and 33 pneumonic. The province of Asyût, where there were 177 cases and 106 deaths, suffered most: after this, Suez, with 87 cases and 55 deaths. Cairo escaped altogether.

The notified cases of malaria numbered 1870, as compared with 1683 in 1919. Of these cases 1594 occurred in Aswân. Nowhere else was there any prevalence. The report states that "a small outbreak at Aswân dam occurred in the month of June, in which some 12 cases were notified. It was found to be due to the existence of some marshy grounds on the east bank of the Nile, in the gardens of the Ministry of Public Works [!]. The ground was filled in and the epidemic

¹ Government Press. Cairo. 1922.² By an unfortunate oversight this is stated (p. 32) as "the minimum effective dose," and "a total dose of 20 to 25 grains for an adult" is afterwards mentioned. "Dose" means strictly the quantity taken at one time.

at once stopped." It is also stated that *birka* filling has been carried out. No comment is made on the fact that 85.2 per cent. of the total malarial incidence in Egypt (1594 out of 1870 cases) occurred in one "locality" (Aswân). In the previous year the ratio had been 77.5 per cent. of the total cases.

Public Laboratories.

The work at the public laboratories continues to increase, the total examinations carried out numbering 18,411, as compared with 15,050 in 1919. The most important researches in the bacteriological section have been in regard to malaria and relapsing fever (6094 specimens), anthrax (1533, mainly shaving brushes), and diphtheria (1083). Of 1380 milk samples, 33.4 per cent. were found to be adulterated. Vaccination was undertaken on a large scale, owing to prevalence of small-pox, and 10,098,720 doses of lymph were issued, nearly double the quantity issued in 1919. This large output is extremely creditable to the staff of the Vaccine Institute, especially as building operations were going on throughout the year, and there was great difficulty in getting suitable calves for vaccine production. At the Antirabic Institute 1035 patients were fully treated; only six deaths occurred "more than 15 days after the treatment was completed." The mortality, or failure, ratio was therefore 0.5 per cent.; 13 other persons died either during treatment, or less than 15 days after completion, giving a gross mortality of 1.8 per cent. The Central and Provincial Medical Commissions examined 24,718 persons for admission to the public service, sick leave, invaliding, &c. Of the 11,553 candidates for admission, 5686 were rejected for medical reasons, the chief cause being defective vision (3668).

This valuable report, which is extremely well printed, is divided into seven sections. The first division of Section I. is signed by Dr. Cathcart Garner, Director-General. No other signature appears, but presumably the entire report is issued under Dr. Garner's authority.

TROOP TRANSPORT.

In the *Military Surgeon* for March, Captain J. D. R. Woodworth gives an interesting account of the methods of the U.S. Army Transport Service in dealing with troop transports, to ensure "cleanly accommodations, minimum danger from disease, and food of unimpeachable quality." His experience was gained in four years at headquarters at Brooklyn. When a transport ship arrives she is examined by an inspector, and further inspections are made while she is fitting out, so that everyone concerned may be instructed in the need for environmental cleanliness as precedent to personal cleanliness; particular emphasis is laid on the way dirt attracts disease-producing insects. All mattresses, pillows, blankets, linen, are sterilised 30 minutes at 260° F., also lifebelts, and carpets, curtains, &c., if required. The plant can deal with 50 to 100 mattresses in an hour. One squad takes these materials to the disinfectant, the trucks are cleaned and sprayed with "insecticide," and a different squad brings the disinfected bedding back to the ship. Messrooms, galleys, store-rooms, pantries are searched for nests of cockroaches and ants, and are sprayed with insecticide, as are also wash-basins, bathrooms, and water-closets. Sodium fluoride, or if these are very small, shellac, is afterwards filled into all cracks. Each sanitary squad consists of a foreman, two mechanics, one sprayer, two torchmen; all are orderlies from the medical corps. They take up all removable fixtures and backs of cupboards, and all bare spaces are brushed and sprayed, all metal work that might harbour insects is burned over by the direct flame of blow-torches. Following this squad come the scrubbers and cleaners who work rapidly, as behind them are always hurrying the painters; then the brasses are cleaned, and the ship is ready for inspection. Food is examined by the national food inspectors, but the port steward and the steward of the ship also examine and may reject anything. If necessary, water is chlorinated after boiling, and water tanks and their linings are frequently inspected. As to the crew of the transport, unless each has been vaccinated recently and inoculated for the typhoid group he must be done now. "Food handlers" (stewards, cooks, waiters, butchers) are examined every six months (as per U.S. Army Regulations) to exclude cholera and typhoid carriers. All passengers are examined within 24 hours of embarkation. Troops are again examined during the first day out, and each must have a spray bath every third day, while passengers are inspected prior to disembarkation. Messtraps are at present washed with soap and rinsed in boiling water, but dish-washing machines are applied for. Refuse is placed in 15 to 30-gallon covered metal garbage containers; there are many, so none are more than half filled, and they are emptied at a special shoot, cleaned and steamed. Ventilation (method not detailed) is carefully watched; the transport surgeon keeps in touch with the chief engineer on this question,

especially in bad weather. As to insects, if food receptacles are always covered these pests cannot get food; nor can rats. Captain Woodworth is justifiably proud of the methods which have already eliminated larger pests. "The Public Health Service, which fumigates the transports, has yet to find the first rat." The insecticide mentioned is made by the Service; its ingredients are not stated, but carbolic acid is mentioned as the best parasiticide.

SPRING-CLEANING AS AN ORGY.

THERE is a tendency nowadays to explain various mental states and conditions of society by a mixture of folk-lore, sexology, and psycho-analysis. Sex, if we may believe modern novels, taken in its widest sense, rules human conduct, and everything is subservient thereto. Like the mythologists of 50 years ago, who saw solar myths in every story of antiquity, so there is a class to-day who sees sex in every human action and in all states of society.

A correspondent, whose gravity we may assume to be only verbal, writes: "Even such apparently asexual matters as motoring and spring-cleaning are deeply committed to sex symbols. In respect of the first, those who have eyes to see can see. Why are all the danger-posts erected by the A.A.A. surmounted by a triangle? The answer is obvious: the triangle is a symbol found all over the world for the female principle in general, and we may recall the anatomical region which the Greeks called Delta Δ. The upright post, as anyone conversant with anthropology knows, is the symbol of the male principle; while both triangle and post are appropriately painted. 'Obscenique ruber porrectus ab inguine palus,' says Horace of Priapus. And again, a most happy find for the sexual anthropologist, these danger-posts are always to be found in the vicinity of schools. The rationalist may believe that this is because children will run in front of motors, but the deeper reason is that children imply, at least in the higher forms of life, the coöperation of the male and female."

These considerations our correspondent holds to be facts which will be allowed by everyone, but he puts forward a hypothesis as to the real meaning of spring-cleaning which he seems to feel needs more support. "I have long wondered," he writes, "as to the origin and meaning of this mystery, but the study of the works of Freud and others have supplied the solution. Spring-cleaning, the orgiastic ceremony which takes place at this time of year, is an obvious example of sex suppression. That it is a merely purificatory function no one who considers the matter can believe; if it were, it would take place in February, the month of 'februa' in the religion of the old Romans, and the one in which the festival of the purification is still held in the Western Church. But spring-cleaning always takes place after Easter—that is to say, close to the vernal equinox, generally in April, when the cycle of reproduction is renewed (cf. Virgil, *Georgics* II., 324). Savages and 'simple lifers,' who are fettered by no scruples, other than an occasional tabu, do not 'spring-clean'; it is only in civilised lands that the ceremony takes place. It is an essentially feminine ritual, and as in the ceremonies of the Bona Dea the presence of men is actively discouraged."

Our correspondent concludes by pointing out that spring-cleaning is a survival of the old days when, under female rule, a ritual was observed according to which fires, save for culinary purposes, were started at a certain date in the year and extinguished on a certain date, when rooms were cleaned and fittings brushed free of the impurities caused by smoke and dust. Between the dates little towards this end was done, the feeling being that the whole domestic environment could be tidied at one period in the spring. To-day arrangements for domestic fires are more perfect, carpets are no longer nailed down, and there is no need to put off cleaning rooms until some distant date; but, he suggests, that the ritual survives as a tribute to that acquiescence in procreancy which is part of human nature.

TO PHOTOGRAPHERS.

THE latest booklet for photographers issued by Messrs. Burroughs Wellcome and Co., entitled "Right Method in Photography," is fairly described as embodying a "simple and scientifically accurate review" of the essentials of success in this exacting craft. The information is equally valuable for the beginner and the advanced worker; exposure, development, intensification and reduction, toning and staining are dealt with in turn, and useful developing timetables are included. The booklet is strikingly illustrated; the cover is a reproduction in photogravure of the base camp of the Mount Everest Expedition, 1922, situated on the Rongbuk Glacier at an altitude of 17,000 feet. Another photograph of historic interest shows the official photographer to the expedition, Capt. J. Noel, at work outside his dark-room tent. The work may be obtained post free on application to Burroughs Wellcome and Co., Snow Hill Buildings, London, E.C. 1.

Certain Points

IN THE DIAGNOSIS AND TREATMENT OF ANGINA PECTORIS.

*An Address Delivered to the Cambridge Medical
Society on May 4th, 1923,*

BY THE RIGHT HON. SIR CLIFFORD ALLBUTT,
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IN a rather large experience of angina pectoris I have found that competent physicians may have to confess to some uncertainty of diagnosis, and even to occasional errors in discrimination between genuine angina and the various simulations of it. Now there is no error more deplorable than to take a genuine angina for a neurosis; the converse error is plaguy enough. For this reason I have thought it well to consider again the more cardinal points of the diagnosis. If careful attention be given to them the cases of doubt should be very few. On the treatment of the disease I have also something important to say.

At the risk of egotism I must begin with the chief of the postulates concerning the malady, which I laid down about 30 years ago,¹ and which have been confirmed by further experience since. On the continent of Europe and in America these doctrines have made their way rather quickly; among ourselves, after our manner, very slowly. But I observe with some amusement that my medical friends at home are "hedging" one by one. One writer on heart diseases admits, as a curious coincidence, that the symptoms of angina pectoris and of aortitis are identical. Others, forgetful of Ockham's razor, talk of a "dual ætiological explanation." To justify these assumptions, which, I repeat, are necessary for our purpose to-day, I may name, among the authors who have accepted them in France, Josué, Dieulafoy, Wybauw, Vaquez; and in Vienna, Wenckebach, the chief of the First Clinic. In Canada Dr. Klotz and others are with me.² In the United States the "Cardiologists" did me the honour of holding a congress to discuss my opinions, when not a few of the leading speakers accepted them frankly³; while of adverse criticism there was little, if any. That discussion concluded with the statement that I had "made out a good case." Dr. Ingals then, and since, and in private letters to me, has accepted my interpretation; so I believe, do Dr. Babcock and Dr. Hirschfelder. My first eminent convert in America was no less a man than Dr. J. B. Murphy, who died of the disease.

THE CHIEF POSTULATES.

The chief postulates are: (1) That in the very large majority of cases—say 90 per cent.—angina pectoris is due to disease of the thoracic aorta, and especially of its outer investment wherein lie the sensory end-organs that regulate the blood pressures; the few exceptions I cannot discuss now.⁴ (2) That death in angina pectoris is due ordinarily to vagus inhibition; that is, to the shock of the pain. (3) That the coronary arteries and the myocardium have nothing to do with the pain of angina, but much to do with its mortality. In younger persons, in whom the myocardium is healthy, the heart usually survives the inhibition, so that in them angina—as often in the case of syphilitic aorta, for example—may be a terrible if not a mortal disease. I invite you then to entertain for a while these three assumptions, which must serve our purpose for the present, that we may pass on to the diagnosis of the disease; for a disease it is. And by a "disease" I mean no so-called "entity" but a mental concept of a series of symptoms recurring with a fair uniformity.

¹ At the Yarmouth Meeting of Eastern Counties Division of British Medical Association in 1893.

² See Trans. Amer. Phys., 1917.

³ See New York Med. Jour., Feb. 15th, 1922.

⁴ See the author's book on Diseases of the Arteries, &c. Macmillan).

Like other diseases, angina may occur in covert or fragmentary forms, or be mimicked by other syndromes. Thus, by reason of latency, partial manifestations, transitoriness, or false resemblances, diagnosis in particular cases may be perplexing. Angina, being often thus transitory or latent, is more common than is generally supposed. As a writer on the subject, my clinical experience may be the larger, but even in its manifest forms there seems to be no lack of cases in private practice, though it seems to be rare in the general hospitals. In illustration of the transitoriness of angina, and so of its being often missed, I will mention some inquiries in our military heart hospitals during the war. There a syphilitic aorta, with or without saccular aneurysm, was no uncommon lesion; in a large ward often as many as half a dozen cases might be found. Of syphilitic aorta in private practice I have watched a few cases throughout in which in the initial stage there was no pain; and in the later stages indeed, pressure effects apart, pain is often absent. The afferent nerves may be destroyed as the spirochaete attacks from without. But on questioning these patients in the heart hospital the majority of them remembered well that they had suffered pain in the past; and when asked to describe it, drew the hand across the upper chest, the common seat of angina pectoris; sometimes adding that at one time it was "pretty bad." But, as I have said, you may give a fairly hopeful prognosis in the angina pectoris of patients, let us say, under 40 or 45 years of age. We must not forget, however, that in syphilis, besides the lesions of the aorta, the heart or its vessels may also be affected.

If, then, a patient under 40 to 50 years of age complains of pain, severe or mild, across the upper thorax, percuss the second right intercostal space and manubrium carefully for any degree of dullness; apply the Wassermann test, and illuminate the aorta by the rays; by these means you may anticipate, and by specific treatment prevent, the extension of an aortic lesion to the valve; a grievous and desperate consequence.

In persons under middle age angina is for the most part of syphilitic origin, probably not mortal unless the heart also be attacked by the infection. Still, cases occur now and then in the course of other infections; most frequently perhaps of influenza, next of rheumatic fever (Poynton and others), and malaria; it may occur in a few other infections, but too rarely for discussion at present. In the severe epidemics of influenza of some years ago I myself saw, and from other physicians heard of, not a few cases of influenzal angina; some of them mortal, and I still see a few sporadic cases. The late Dr. Sansom published three cases with necropsy, when acute aortitis was revealed. But as, in my work on the subject, I have recorded such cases of my own, and quoted others, I will not dwell upon them now longer than to indicate this element of diagnosis, and to urge upon you not to overlook this possible event, one in which prompt and meticulous treatment is imperative. Let the following case suffice as an example: The grown-up son of a colleague of mine in the University, aged about 28, was attacked twice by influenza in 1915. When convalescent from the second attack he began to suffer from severe pains in the chest. Besides his own doctor, he saw three special consultants in London, all of whom, having examined his heart very carefully and found no fault with it, therefore assured him that the pains were only "neurotic," that he was to "take a holiday and buck up." He bucked up, and in spite of pain was advised to persist; the consequence was that in an attack of the pain he died suddenly. Time after time cases of secondary angina are thus airily dismissed as neurotic, until in one or other of them thus wrongly interpreted sudden death rudely reveals the mistake.

Tobacco angina in its intenser degrees is a rare disorder; in my own practice I may have seen some half dozen of the severer cases. A full-grown seizure is a terrible apparition; slight touches of tightness and oppression of the chest are not uncommon, but of little relative importance. In a severe case the pain seems to be agonising. Such is the patient's distress

or panic that, while the attack is upon him, one can hardly get a precise description of the chief seat or distribution of the pain. It may be said to dart all over the chest, to run down one or both arms, and to occupy the cardiac area if it does not begin there; a part, that is, which is rarely the seat of angina proper. The "precordial area" of angina is a figment of the text-books; the primary seat of the pain of angina is in the large majority of cases substernal,⁵ generally under the upper third of the bone. In a few cases it falls to the lower sternum or the epigastrium. Here, then, we gain one point of the differential diagnosis of tobacco angina from angina proper. Another and a more definite distinction of the tobacco disorder is that, whereas in angina proper the sufferer is held in an awestricken arrest, the tobacco patient writhes, tosses, and paces the room in his agony. A third point is that usually in the tobacco cases the heart is irregular, as with extrasystoles or otherwise; whereas in angina proper its action is not disturbed at all, or shows no more than slight vagus retardations.⁶

In another kind of anginiform attack, in acute thrombosis of a coronary artery, the patient is likewise restless. I have offered an explanation of these cases in my book on Arterial Disease and Angina.

DIFFERENTIAL DIAGNOSIS.

It is said that the most difficult cases to distinguish from angina pectoris are the so-called *neurotic*, though I cannot say that personally I have met with much of this difficulty. Angina proper is rare in women. Osler had no recollection of a case; I have seen, and in my book recorded, a few typical and unquestionable cases in women, all of which ended in death. On the other hand, the so-called "pseudo-angina" is frequent among women, more frequent by far than in men. In this malady the pain is correctly defined, as in its principal seat, precordial, and varies from a tiresome submammary ache to a paroxysm of pain, apparently as it lashes about the chest very distressing, often striking very sharply along the intercostal and left anterior axillary lines, and even down the arm. It seems to be a storm in the brachial plexus, intercosto-humeral, Wrisberg, and phrenic nerves. As in the tobacco angina, the patient is not awestricken, but restless and even vociferous. She writhes under the lashing of the pain; she is not silenced by that sense of the uncanny which generally oppresses the victim even of the milder degrees of angina pectoris. The angina patient again is generally, though not always, pallid or pallescent; the pseudo-anginose are flushed in the face. And these patients are for the most part young, or not elderly, under middle age, or but little beyond it, and the attacks may be determined by annoyance, the catamenial period, or other upset. The heart and pulse are not, as in angina proper, tranquil, but throb rapidly, often with an irregular rhythm. The heart may be felt as if leaping out of the body. Palpitation in angina proper does not occur. Between the attacks the physician will fail to detect any sign of disease or degeneration, or none, at any rate, suggestive of cardio-arterial disease. If such signs can be detected the diagnosis must be revised.

The embarrassment of the physician arises when he has to distinguish between simulations of angina and its slighter degrees (angina mitis), or eccentric manifestations of a true angina. These slighter degrees are more common than is generally supposed, and, ominous as they are, not infrequently pass off without critical phases, and the patient lives to die of some other disease. Of its many eccentric and deceptive manifestations, such as epigastric pain suggestive of flatulence or gall-stone, pains in one or both elbows or hands on sharp walking or ascents, and so forth, I have given many examples in my work on the subject. The consultant, or indeed the family physician, may not happen to witness an

attack, especially if it be mild and transient, and he is so far at a disadvantage. In an elderly patient, who described to me momentary sensations of tightness of the chest and arrest while walking, I wished to suspend a verdict of angina; but a medical friend of his told me that while walking with the patient he saw him turn pale, stoop a little, and stop with a look of apprehension on his face. A moment later he stepped forward, saying it was "nothing"; but this description determined the diagnosis; after a while the attacks became more pronounced, and in one of them he died suddenly.

Now it is in this context that I would describe certain mild attacks, far from infrequent in elderly persons, which hitherto have not been disentangled from classical angina. The patients say, and among them I have had three or four medical men who have helped me by careful description of their own cases over long periods of time, that on walking rather quickly a substernal oppression comes on which may amount to a pain. Sometimes it is attended with a slight aching in the deltoid area. In former papers I have given these the name of walking cases. Many elderly persons have told me that if they hasten, as to a train or bus, they feel this substernal tight oppression; indeed, I remember it in my own person when, in past times, I was foolish enough to run. Now is this a covert or rudimentary form of angina? I think not, and for these reasons: Sufferers from angina will perceive a rise in the ground hardly noticed by others, and will not face a hill; but the patients of whom I am now speaking find or notice no difference between level grounds and even steep ascents. When with a medical man thus affected I was discussing the question of retirement from his profession, on account of the stairs he had to climb, he replied that stairs made no difference to him; and sufferers of this class have such immunity. Moreover, although both in angina and in this shadow of angina, the oppression is worst after meals, yet in the false cases recurrence is at all times far more capricious than in the true. It comes and goes. More than one of these patients has told me that if he goes away for a holiday he soon loses the oppression altogether and can walk and climb at discretion. Indeed, even during ordinary work at home the false oppression often disappears for weeks or months and may return, or may not. In true angina there are no such caprices. It stays or it vanishes. My attention has been fixed upon these cases during the last few years only, and, so far, I believe none of them has issued in overt angina. As to the cause of this oppression: it is relieved by passage of wind upwards, but the same is true of real angina. But Dr. Poulton has recently described some experiments, with a colleague, in which a rubber bulb was inserted into the oesophagus and inflated, which inflation gave rise to a substernal oppressive pain described in the same terms as by the patients of the class I have indicated. The explanation may lie not in the distension of an atheromatous and somewhat tender aorta, but rather of the oesophagus by air. Mr. Verdon has given relief in many cases of angina by artificial deflation of the stomach; perhaps some of his cases were of this mimic class? He says also that anginous patients who are distressed by walking may be able to ride a bicycle, an experience which he explains by the relaxation of the abdominal muscles. Of the riding on a bicycle by really anginous patients I know little; elderly men do not often ride bicycles, but I vividly recollect a case of a man a little past middle life, who, after a whole day's fly-fishing with impunity, while bicycling homewards with his son was seized with the first attack of a severe form of angina of which not very long afterwards he died.

Attacks of genuine angina pectoris are apt to occur in the course of another morbid series, which must not be passed over—namely, in the course of high arterial pressures. I do not happen to recall a case in which it occurred as an episode in the course of high pressures due to renal disease, though no doubt it may do so; but of the malady now known as hyperpiesia, it is no very unusual complication, the

⁵ On this contrast with the common submammary ache see Dr. John Parkinson, THE LANCET, April 5th, 1919.

⁶ That in A.P. the phlebograms and E.K.G. are normal, see McIlwaine, Brit. Med. Jour., Feb. 12th, 1920. It is difficult to make these records during an attack.

attacks being the result of stress upon a "fatigued" aorta. My reason for distinguishing this series of morbid events from angina with normal pressures is because in these cases the prognosis is rather less grave, and the malady more manageable. The aorta which could have tolerated ordinary stresses winces under strain. If the aortic blood pressures can be reduced the vessel will probably recover itself, and complain no more. Sir Richard Douglas Powell has stated, in agreement with me, that the phenomena of angina suggest tension of a tender vessel rather than a disease of the heart.⁷ An elderly gentleman, who off and on had been under my care for two or three years for hyperpiesia, one night was awakened by an attack of angina of some severity. This happened two or three years ago; under careful regimen directed to arterial pressures, he has since remained entirely free from attacks. In these high pressure cases put the patient quite at rest in bed, for a week or ten days; during this time the blood pressures will gradually fall, and by appropriate dietetic and other remedies the new peril will probably be averted. But ordinarily in hyperpiesia the anginose symptoms occur on exertion only, and usually, indeed, do not amount to more than a passing substernal oppression. A sudden dyspnoea on mounting hill or stair may be the first manifestation of high arterial pressures of long standing, and more than once such a patient has been sent to me as a case of "angina." Dyspnoea is not a character of angina.

TREATMENT.

This paper is too long already; I must refrain from more clinical chat. What I have to say about treatment can be expressed in a few words. My principle of cure in angina has been, and still is, to treat the case as if it were one of aneurysm—namely, by absolute rest of a duration proportionate to the severity, and the stubbornness, of the case. In a recent case of great intensity and tenacity, in a man of about 65 years of age, I may say that by this method cure has now been established. Not many patients are able, if willing, to betake themselves to bed and to immobility for weeks or months, but those so able have their reward. The patient of whom I speak suffered for the first few weeks so intensely that the mere opening of his bedroom door often brought on an attack; and many were his seizures both by day and by night. He was put to bed; his natural wants were served by the bedpan, his food was made simple and soft, and was carefully administered. Brave, faithful and hopeful through a first period of incessant suffering he then began to feel some mitigation of the attacks in degree and frequency; and after five months of immobility he found himself able gently to move about, and so by degrees to return in a quiet way to his ordinary life. He has not had an attack for a long time past; the sore of the aorta was healed. Happily few cases need so long a restraint as this; few patients perhaps have the easy mind, and the means, the strength of will, and the mental resources, to sustain them through such a discipline. The patient is allowed to read peaceful books and journals, but not to play games nor to entertain guests. Dr. Pratt, of Boston, kindly wrote to me to say that for 10 years past, in cases of angina pectoris, he had followed my method of complete rest with excellent results. There are, of course, many other means, such as the nitrites, to be used as subsidiary to the main purpose; and I have recommended a liberal use of atropine to ward off vagus arrest. But the principle of treatment I have advocated is simplicity itself—namely, so much complete rest, with due modification of diet as may be required for the healing of the injured vessel. Treat angina pectoris then as you would an aneurysm, but with far brighter hope of a successful issue. Of the results of Jonnesco's operation of cervical sympathectomy, in order to throw the aortic afferents out of gear, I know nothing; but the proposal is a reasonable one.

⁷ See THE LANCET, May 1st, 1915.

An Address

ON

SOME GYNÆCOLOGICAL OPERATIONS IN RELATION TO LIFE ASSURANCE.

A Paper read before the Assurance Medical Society on May 2nd, 1923,

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F.R.C.S. EDIN.,

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In view of the extension of the practice of life insurance and of sickness insurance among women, and of the great increase of gynæcological operations during the last 30 years, it is natural that medical referees of insurance companies should wish to know the influence of such operations on the subsequent health and on the expectation of life. For many years I have been deeply interested in the question of after-results of operative treatment; and it appeared to me that a good deal that I had learnt in the course of my investigations had a direct bearing on the subject. For about 15 years I followed up systematically every case that I could trace among my first thousand gynæcological operations; I wrote to them, interviewed them, and examined them, and made exhaustive analyses of the data obtained. There were 41 operative deaths in the 1000 cases; of the 959 who survived I was able to trace 771, or just 80 per cent. The results were published in 1910 in several issues of the *Journal of Obstetrics and Gynaecology of the British Empire*, and afterwards in book form.¹ Since then I have remained interested in after-results, though I have not been able to follow them up in the detailed, and I may say laborious, fashion in which I studied the first thousand. A great deal of what I now have to say is based on the work just referred to, amplified, and, when necessary, corrected, by subsequent experience of an additional 3000 cases.

OPERATIONS CLASSIFIED.

Obviously the value of the after-history depends primarily on exact knowledge of the nature of the operation; and I had to adopt a classification suitable for this particular purpose. I give it here (Table I.).

TABLE I.

Operation.	Cases.	Cases traced.
1. Unilateral salpingo-oophorectomy—		
A. For tumours	122	98
B. For inflammatory disease	44	29
C. For extra-uterine pregnancy	52	38
2. Bilateral salpingo-oophorectomy—		
D. For tumours	43	33
E. For inflammatory disease	98	63
F. For extra-uterine pregnancy	18	13
G. For uterine fibroids	2	1
3. Abdominal hysterectomy—		
H. For fibroids	76	63
I. Fibrosis	11	9
J. For carcinoma	6	4
4. Hysterectomy and unilateral salpingo-oophorectomy—		
K. For fibroids	64	54
L. For fibrosis	10	8
5. Total extirpation—		
M. For ovarian tumours	14	10
N. For fibroids	69	52
O. For inflammatory disease	24	18
P. For carcinoma of the uterus	14	13
6. Conservative operations for fibroids—		
Q. Abdominal myomectomy	18	12
R. Myomectomy and ovariectomy	6	5
7. Operations for displacements—		
S. Hysteropexy and myomectomy	27	23
T. Hysteropexy	220	170
U. Hysteropexy and ovariectomy	62	55
Total	1000	771

¹ A Study of the After-results of Abdominal Operations on the Pelvic Organs. London: Baillière, Tindall and Cox. 1910.

with the number of cases of each kind traced, as it may be convenient to refer to individual groups by their index letters.

[Exploratory Operations Disclosing Malignant Disease too Far Advanced for Removal.]

There is a group of cases, not included in Table I., to which I may make a reference—namely, exploratory operations where malignant disease is found, too far advanced to allow of removal. Experience shows that the expectation of life after such an operation mostly ranges from two to six months. I suppose that these cases would never come before an insurance company, for the first time, after the operation had taken place; but an insurance company might conceivably be interested in a patient for whom such an operation became necessary later on, and the question of the expectation of life might then arise. If that were so, it would be well for the medical officer to bear in mind that even the most experienced operator is not infallible.

I may instance two cases. Many years ago I operated on a patient; I found what I took to be extensive ovarian carcinoma and closed the abdomen. I wrote to her, among the others, when tracing after-results, and expected to hear that she had passed away. Instead, she answered my invitation for an interview by turning up; and she told me, with what seemed like a pardonable pride at scoring off me, that another surgeon had operated and had removed the tumour, and that she was now perfectly well. In the second case my rôle was reversed. One of the best and ablest of the surgeons in the North of England operated and found what he regarded as inoperable carcinoma, and the patient was given a few months to live. Three years later I saw her, and removed what proved to be extensively adherent but benign bilateral ovarian tumours. The patient had become wasted almost to a skeleton; and she gained 30 lb. in weight within three months of the operation.

CASES WHERE DEFINITE OPERATION WAS PERFORMED.

Passing on now to the main subject of this paper—namely, cases in which some definite operation has been done—it will be convenient to take separately two important questions: (1) What is the expectation of life after abdominal operations? (2) What is the state of health after these operations?

1. What is the Expectation of Life After Abdominal Operations?

For an attempt to formulate an answer to this question we must obtain the most exact information available as to the conditions present at the time of operation.

Carcinoma.—The most important point is whether malignant disease was present and where. After ovariectomy for ovarian carcinoma, even if the growth appears to be completely removed at operation, there is an appreciable risk of recurrence. I cannot give precise figures for this; I can only state my impression that the risk may be put down as about 25 per cent. In the case of hysterectomy for cancer of the cervix, the risk of recurrence is much higher. Many statistics have been published, and they vary enormously; moreover, the value of the data is seriously impaired by the failure of many operators to distinguish between the results of operations in early cases and those in advanced cases. My belief is that if we put down the recurrences in early cases as 30 per cent. and those in advanced cases as 75 per cent., we shall not be over-estimating the risk. On the other hand, hysterectomy for cancer of the body of the uterus has a much more favourable outlook; judging from my own experience, I should say that the chance of recurrence may be put down as 10 per cent. for all cases, with a rather higher figure for the more advanced and a lower figure for the early ones. After a hysterectomy for chorion-epithelioma the chances of metastasis and recurrence are very great, and such a patient must be regarded as a "bad life." Sarcoma of the uterus

is much rarer than carcinoma; and I know of no data concerning its recurrence. My impression is that in this respect it might be classed with carcinoma of the body of the uterus.

Benign Tumours.—When bilateral ovariectomy has been done for benign ovarian cysts, there is no fear of recurrence, and the expectation of life may be regarded as being nearly as good as it is in the case of the average normal woman. I put in the qualification "nearly" for two reasons. In the first place even pathological diagnosis may err; and I have known several cases where the pathological report on ovarian tumours removed pronounced them to be benign; yet the patient developed obvious abdominal recurrence of a malignant character later on. It must be admitted that ovarian tumours sometimes show histological characters on which experts may express quite divergent views. Thus a cystic adenoma may closely resemble an adeno-carcinoma; a benign papilloma may be very difficult to distinguish from a malignant one, inasmuch that the sequel alone shows which it is. If there is no recurrence we say it was benign; if there is recurrence we say it was malignant. I recall also a case of a huge ovarian fibroma, weighing 30 lb., which I removed from a patient aged 60; when I showed the specimen with slides, at the Royal Society of Medicine, some members of the pathological committee expressed a confident view that it was sarcoma. Others took the same view as I did, that it was fibroma. The patient lived over 13 years after the operation, and died recently without any signs of recurrence.

I should certainly advise insurance medical referees to be cautious in accepting as a first-class life a patient who has had an ovarian papilloma removed.

My second reason for the qualification of "nearly" is that a patient who has had an abdominal operation of any kind has a small, but appreciable, liability to further trouble. I shall deal with this more fully when speaking of after-health. A patient who has had a unilateral ovariectomy done carries with her the two risks just considered—that of incorrect diagnosis, and what I may term the "general operative sequela risk." She runs a third risk, due to the fact that she still possesses an ovary. This point also will be dealt with more fully under "after-health." Hysterectomy for benign conditions, such as uterine fibromata, uterine fibrosis, and chronic metritis involves no consequences beyond the "general operative sequela risk," and even this is less than is the case after other operations. Therefore, as far as this factor is concerned, I should consider that such a patient could quite well be accepted as a first-class life.

Tubal Inflammatory Conditions.—In this category we may include not only salpingitis, pyosalpinx, tubo-ovarian cysts, and tubo-ovarian abscess, but also cases in which an operation has had to be undertaken for a ruptured extra-uterine pregnancy. In all these cases the "general operative sequela risk" is higher, because the inflammatory condition exaggerates the liability to trouble arising from adhesions. I have met with or known of several cases of intestinal obstruction following operations for the removal of pus-tubes, after an interval of one to three years. When the operation is unilateral there is a quite considerable liability to subsequent trouble in the remaining appendages. It can be stated, however, that any sequel of the one kind or the other is likely to show itself within the first five years after operation; and if at the end of this time the patient feels well and the pelvic condition appears to be normal, I should regard her as eligible, *ceteris paribus*, for acceptance as a first-class life.

All the above operations involve the removal of organs, and one further general observation may be made with regard to them—namely, that operations for the removal of the uterus or of both ovaries eliminate an important risk to which the average normal woman of child-bearing age is liable—namely, the risk of child-birth. I suppose that from the insurance point of view a woman who has had this factor eliminated would, other things being equal, be

accepted for insurance purposes on much the same footing as a man.

Expectation of Life After Conservative Procedures.—One class must be taken by itself—namely, myomectomy for fibroid tumours. Here the general operative sequela risk is increased by the possibility that other fibroid tumours may develop. The remaining conservative procedures can be grouped together; they would include operations for the rectification of displacements, salpingostomy, and the resection of ovarian cysts. The general operative sequela risk in all these cases is low, and the patients may be considered, from the insurance point of view, as being practically normal women.

2. What is the State of Health After Abdominal Operations?

General Health.—In my investigation on after-results I made careful inquiries as to the general health after operations; I grouped the replies into three categories: (1) general health very good; (2) health moderate, but better than before operation; (3) health poor, or worse than before operation. The insurance referee is not interested in the comparison of the health before and after operation; he wants to know only the present standard of health. I had comprehensive tables showing the percentage of cases in each group, worked out for each one of the different types of operation (A to U). In Table II. I shall condense results.

TABLE II.

Health.	A.B.C.		D.E.F.M.O.		H.I.K.L.N.		Q.S.T.		Total.	
	No.	%	No.	%	No.	%	No.	%	No.	%
Very good.	141	65.4	110	77.4	132	73.4	143	76.4	526	72.5
Poor or moderate.	75	34.6	32	22.6	48	26.6	44	23.6	199	27.5
Total ..	216	—	142	—	180	—	187	—	725	—

It will be seen that of 725 total cases in which data were available, 526, or 72.5 per cent., expressed themselves as being in very good health. In individual groups of operations the results varied; and it is striking that the highest percentage of cases of very good health occurred in the cases where the appendages of both sides were removed; whilst the lowest percentage was in cases where the appendages were removed on one side only. This seems to show that by saving the appendages of one side, while we preserve function, we add to the possibilities of subsequent ill-health. The conservative operations, ventrofixation and myomectomy, have also a very high percentage of very good health; and the operation of hysterectomy for benign conditions is not far behind.

State of the Memory.—This is a minor, but none the less interesting point. Years ago I came across the statement that the memory was sometimes affected after operations; and though my impression was that this must be very rare, I questioned my patients closely. I was surprised, when working out the figures, to find that the memory appeared to be

TABLE III.

Operation.	Average duration.	Memory affected (per cent.).
Hysterectomy for carcinoma ..	1—1½ hours.	50
Removal of inflamed appendages ..	½ hour.	32
Hysterectomy and myomectomy for fibroids ..	½ hour.	27
Ovariectomy ..	20 min. to ½ hour.	26
Hysteropexy ..	½ hour.	18

affected in about 25 per cent. I divided my data into five groups according to the type of operation; and it then seemed evident that the factor that had the most influence was the duration of the operation.

This will be made clear by setting out in parallel columns (Table III.) the average duration of operation in the five groups, and the percentage of cases in each group in which the memory was affected.

General Operative Sequela Risk.—I have referred to this when discussing the expectation of life; and it will be profitable to look into it in more detail. Twenty-three patients of those that I traced died later: ten from recurrence of malignant disease, two from intestinal obstruction, one from generalised miliary tuberculosis; these 13 may be said to have died of sequelæ of the operation. The remaining ten were from independent causes: two of pneumonia, two by suicide, and one each of carcinoma of the breast, carcinoma of the sigmoid, carcinoma of the rectum, cholera, uræmia, and pulmonary oedema. At the time of my investigations, in 1910, I had records of 64 cases in which further operation was required. For the purpose of this paper I have gone over the cases again and traced an additional 20 cases from among the same original cases investigated, in which operation was required after those results were published. This makes altogether 84 cases; and it will be instructive to consider them in relation to the nature of the first operation (Table IV.).

TABLE IV.

Operation.	Cases.	Later operation.	Percentage.
Unilateral salpingo-oophorectomy ..	98	17	17.3
Tubal disease or for tubal pregnancy ..	67	17	25.3
Bilateral ovariectomy for tumours ..	43	3	7.0
Bilateral salpingo-oophorectomy for tubal disease or for tubal pregnancy ..	94	16	17.0
Hysterectomy for fibroids and fibrosis ..	186	7	3.7
Myomectomy ..	40	7	17.5
Operations for uterine displacements ..	225	17	7.5
Total ..	753	84	—

We must distinguish between operations undertaken for conditions which are direct sequelæ of the first operation, and those that are necessitated by conditions independent of it.

Unilateral Ovariectomy.—Three patients developed a hernia of the scar: one had intestinal obstruction, presumably from adhesions; and three developed malignant disease: one of these had a large inoperable tumour, and a colotomy was done; the second had a large adeno-carcinoma of retroperitoneal origin, weighing 4½ lb.; and the third had recurrent growths in both iliac fossæ and in the scar. In all three cases the tumour first removed was regarded as innocent, and they illustrate forcibly the caution previously uttered as to the possibility of pathological error. The scar hernias and the intestinal obstruction are direct sequelæ; two of the recurrences occurred within a year, and may also be regarded as sequelæ. The retroperitoneal adeno-carcinoma is more doubtful, as it did not appear until seven years had elapsed. Of the remaining ten cases, one had an extra-uterine pregnancy on the other side; five developed a second ovarian tumour; two had tubal disease of the other side; and two required hysterectomy for fibroids. The net result in the groups is: three scar hernias; four other sequelæ; and ten independent conditions.

Unilateral Salpingo-oophorectomy.—Among these cases there were two scar hernias; and there were two other sequelæ in the form of an infected stump adherent to bowel. Of the 13 independent conditions, two operations were for a second ovarian tumour; four for tubal disease on the other side; four for tubal pregnancy on the other side; one each for uterine fibroid, uterine fibrosis, and uterine displacement. It will be noticed that, in these two groups together, out of 165 cases there were no fewer than 18, or 10.9 per cent., in which there was trouble later on in the remaining ovary or tube—namely, seven ovarian tumours, six cases of tubal disease and five of extra-uterine pregnancy.

Bilateral Ovariectomy.—Of the three subsequent operations, two were for scar hernia, and the other was for a necrotic tumour incarcerated in the pelvis among dense adhesions. Its necrotic character made it impossible to determine its nature; we may assume that it was an independent condition, rather than a sequela.

Bilateral Salpingo-oöphorectomy.—Here there were five cases of scar hernia and five other sequelæ—namely, intestinal obstruction, an operation for the separation of adhesions, and three cases of an inflammatory focus in the stump. The independent conditions were: Uterine fibroids, two cases; cystic degeneration of one ovary that had been preserved, two cases; hysterectomy for fibroids; and hysterectomy for carcinoma of the cervix. In the last case the hysterectomy was done 26 years after the previous operation.

Hysterectomy for Fibroids.—Four of the seven later operations were for sequelæ—namely, one scar hernia; a case of separation of adhesions; an abscess of the cervical stump, causing an abdominal sinus; and an infection of the cæcum leading to perforation, and necessitating an enterorrhaphy. The independent conditions were a case of ovariectomy; a gastro-jejunoscopy for duodenal ulcer; and an exploratory for what appeared to be carcinoma of the sigmoid and bladder. This patient lived for years after in good health, so the diagnosis became doubtful.

Myomectomy.—There were two scar hernias in this group. Of the remaining five operations, four were hysterectomies for recurrence of fibroids; these must be regarded as coming into the category of sequelæ. The other was a hysterectomy for fibrosis, which was an independent condition.

Operations for Displacements.—This group presented four scar hernias and five other sequelæ—namely, refixation of the uterus for recurrence of the displacement. The eight independent operations were as follows: Two for appendicitis, two hysterectomies for fibroids, a double ovariectomy, a single ovariectomy, a case of tubal disease, and an exploratory operation for what proved to be an inoperable carcinoma.

We may now try to express statistically the risk that further operative procedures may be necessary. It is certain that the general operative sequela risk is more definite than the risk of independent conditions requiring operation; but presumably, from the actuarial point of view, they must all be taken into consideration. The preceding results are expressed in Table V.

TABLE V.

	Cases.		Scar hernia.		Total operations for sequelæ.		Operations for independent conditions.		Total.	
			No.	%	No.	%	No.	%	No.	%
Unilateral ovariectomy	98	3	3.0	7	7.1	10	10.2	17	17.3	
Unilateral salp. oöph.	67	2	3.0	4	6.0	13	19.4	17	25.3	
Bilateral ovariectomy	43	2	4.6	2	4.6	1	2.3	3	7.0	
Bilateral salp. oöph. . .	94	5	5.3	10	10.6	6	6.4	16	17.0	
Hysterectomy for fibroids	186	1	0.5	4	2.1	3	1.6	7	3.7	
Myomectomy	40	2	5.0	6	15.0	1	2.5	7	17.5	
Operations for displacements	225	4	1.7	9	4.0	8	3.5	17	7.5	
Total	753	19	2.5	42	5.5	42	5.5	84	11.1	

Salp. oöph. = Salpingo-oöphorectomy.

It would thus appear that for abdominal operations in general the operative sequela risk is the same as the risk of further independent conditions requiring operation, each standing at 5.5 per cent.; and the total risk is 11 per cent. But with some operations the risk is very high, being as much as 25 per cent., or 1 in 4, for unilateral removal of diseased appendages; and 17 per cent., or 1 in 6, for unilateral ovariectomy, bilateral removal of diseased tubes, and myomectomy; whilst at the other end of the scale

the risk after hysterectomy for benign conditions is 3.7 per cent., or 1 in 15; and it is about twice as great after bilateral ovariectomy and operations for displacement.

It is perhaps necessary to bear in mind that if we took any thousand average healthy women of 25 years of age, and could trace their lives for 20 years, we should find an appreciable number at the end of that time who had had to undergo operations of different kinds. If we could obtain figures representing this primary risk and deducted the numbers from the figures in my tables we should get a close approximation to the real risk of further operative procedures that results from abdominal operations. I may further point out that the figures that I have given probably indicate the maximum risk; for they refer to my earlier cases. With improvements in operative technique, and especially the greater perfection of asepsis, the incidence of scar hernias and of sinuses due to septic foci has greatly diminished, and I have no doubt that if I could trace the detailed history of my last thousand cases, the number requiring subsequent operation would be markedly less.

SUMMARY.

I may summarise my observations as follows:—

Health after Operations.—About 70 per cent. of patients regain normal health. The highest proportion is found in cases of conservative procedures and of complete removal of organs. Unilateral operations on the uterine appendages show the lowest proportion of complete recoveries, the chances of complete cure being subordinate to the preservation of functions of womanhood. There is a disturbance of the nervous system, shown especially by the affection of memory, and in most cases temporary, in a proportion of cases, varying from 18 per cent. of cases where the operation was of short duration to 50 per cent. in the case of long operations. There is a risk that further operations may be required, which may be put down as a 10 per cent. risk, comprising direct sequelæ of the operation and independent conditions in about equal proportions. The risk is greatest after operations for inflammatory disease of the tubes and after unilateral operations on the tubes and ovaries; and it is lowest after the operation of hysterectomy for benign conditions.

Expectation of Life.—Cases of operation for malignant disease must be regarded as bad lives, the risk of recurrence varying from 10 to 75 per cent. After operations for inflammatory disease the expectation of life is fairly good, but it is impaired by the liability of sequelæ. Patients who have had benign tumours removed may be considered as good lives, as the chance of complications that may lead to a fatal result is negligible. Lastly, patients who have had operations that prevent further pregnancy have had an adverse factor in the expectation of life eliminated.

CHELSEA HOSPITAL FOR WOMEN.—The fifty-second annual meeting of the governors was held on April 24th, Sir Louis A. Newton presiding. The Council's report for the past year stated that the number of patients treated was 848, an increase of 100 compared with 1921. This increase had been effected by closing one floor at a time for annual cleaning instead of both together, and it was the chief factor in a reduction of the cost per patient per week from £4 2s. 7d. to £3 9s. 2d. During the year 533 major and 302 minor operations were performed. The out-patients' fee had been reduced from 2s. to 1s., except for the first attendance. Only half the beds can be used for patients until the staff can be moved from the others to the proposed nurses' home. A sum of rather more than £30,000 is needed for building the home; £18,000 is in hand. The chairman, in moving the adoption of the report, made a strong appeal for the balance required for the nurses' home fund, stating that it would enable the hospital to treat some 700 additional patients yearly. A paying home for patients no longer able to pay the high fees of nursing homes was greatly to be desired and could be built in the hospital grounds. The Voluntary Hospitals Commission and the Combined Hospitals Appeal had done much to restore the financial position of the hospital, but continued efforts were needed.

THE TREATMENT OF THE CLAVICLE FRACTURED BY INDIRECT VIOLENCE.

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BEFORE describing the method I adopt in the treatment of such fractures of the clavicle as have been caused by indirect violence, it would be as well to give a short description of the clavicle and scapula, and a brief account of their mechanics.

The clavicle is curved in shape, so that the inner two-thirds are more or less rounded in form, while the other third is flattened from above downwards. The inner segment is curved to enable a different portion of that arc to impact on the upper surface of the entire length of the first costal arch, and as it ascends gradually upwards becoming more abrupt posteriorly when the shoulder is carried from an extreme forward to an extreme backward position. In the various positions of the shoulder the clavicle transmits force in a vertical direction to any portion of the entire first costal arch and, if sufficient downward pressure be exerted, the clavicle impacts and transmits pressure to a part of the second costal arch. The inner end of the clavicle is held down by powerful ligaments, and forms the fulcrum of a lever, the length of which corresponds to the entire clavicle. The outer third, which is thrown forwards in order to bring the scapula and arm into a useful working relationship with the thorax, is flattened in consequence of the strain exerted upon it posteriorly by the trapezius, and anteriorly by the deltoid, ossification taking place in the line of strain. This portion of the bone, besides performing the purpose of a lever, serves as the junction of the deltoid and trapezius muscles, and is directly continuous and identical in function with the acromion and the spine of the scapula. The two bones—namely, the clavicle and the acromion—move on one another, on an inclined plane, in order to enable the glenoid cavity to be brought into relationship with the humerus and clavicle. The relationship of the scapula to the clavicle and humerus is that of an intermediary, the scapula being to some extent a part of the clavicle, with which its spinous process is continuous in direction and function. The scapula is supported partly by muscles, and to a far greater extent by the powerful coraco-clavicular ligaments, which connect the base of the coracoid process to the clavicle. It will be seen that should a fracture of the shaft of the clavicle take place proximal to the coraco-clavicular ligaments the scapula, lacking the stay of a sound clavicle, is rotated forwards by the action of the serratus magnus and pectoralis minor muscles, by its own weight, and by that of the arm which helps in exaggerating the displacement of the scapula and outer fragment of the clavicle in a downward, forward, and inward direction. The inner fragment of the clavicle is kept in position to some extent by the rhomboid ligament, its outer extremity being displaced upward by the action of the sterno-cleido mastoid muscle and by the elastic pressure of the first costal arch, the shoulder dropping forwards and downwards.

Principle of Replacement of Scapula.

The principle upon which treatment must be based is the replacement of the scapula in its normal relationship to the clavicle and thorax, the tilting of the inner fragment being taken into consideration. While the placing of the patient in the supine position tends to do this, it only effects it very imperfectly because of the tilting alluded to. It is a common fallacy to imagine that accurate apposition of the clavicular fragments can be secured in this way. The method generally adopted is to endeavour to so fix the arm in position in relation to the thorax that a thrust in an upward, outward, and backward direction is exerted through the humerus on the scapula. The

objections which I take to this method are that it does not effect the purpose for which it is intended, that it puts the arm out of commission for a long time, that the muscles waste and the joints become stiff, that union is delayed, and that the position, if the treatment is carried out with sufficient thoroughness to serve any useful purpose, is uncomfortable and painful.

Technique.

The method which I adopt is to secure as thoroughly as possible the proper relationship of the fragments to one another by fixing the scapula in position by strapping, the arm being left quite free. By this means recovery is very rapid and painless, the arm suffers no depreciation in function, and union takes place rapidly and in good position.

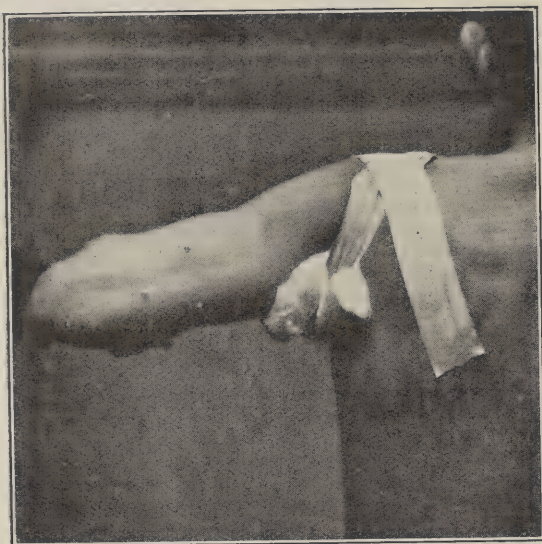
The common seat of fracture is in the middle third of the bone, and the position assumed by the patient is typical of the lesion. He stands with his head bent down towards the fractured side, in his effort to relax the pull of the sterno-cleido mastoid of the inner fragment, whilst the hand of the sound arm supports the elbow on the damaged side, in order to relieve the drag of the arm on the outer fragment. The principle involved in this method of treatment depends on the control of the outer fragment by means of the intermediary, the scapula. In order, therefore, to reduce the deformity, raise the arm on the injured side to a right angle with the body. This brings the outer fragment up to the level of the inner fragment. Stand behind the patient and draw back both shoulders firmly, so that the scapula is pushed back as far as possible, the arm still being kept raised at a right angle. Having effected reduction of the deformity in this manner, apposition of the fragments is secured by fixing of the scapula in the position in which it now lies. Do this in the following manner. With the injured arm still raised at a right angle (Fig. 1), place a thin layer of Gamgee tissue or cotton-wool in the axilla. Then fix the end of a long strip of adhesive plaster to the top of the shoulder-joint, just over the acromion, and bring it up under the axilla to the front where it crosses over the top of the shoulder at the acromial end of the clavicle. This strip, which encircles the shoulder-joint, is brought diagonally across the scapula to below its angle. Take a second strip of plaster, about 1½ in. in width, and start from just above the nipple and bring it with firm pressure over the clavicle to below the angle of the scapula (Fig. 2), much in the position of an ordinary brace. Apply a third and fourth piece in the same way, slightly overlapping each other, and covering the entire surface of the clavicle (Fig. 3). Lower the arm gently, and allow the patient to dress himself in the ordinary way. No support is required beyond that obtained by means of an ordinary sling, which is worn for the first two days to prevent the weight of the arm causing discomfort. The use of the arm should be restricted to underhand movements, though one rarely finds much desire on the part of the patient to do more. The services of a skilled masseur are obtained, and the injured parts are massaged daily for at least a week. I should mention that the movements of massage can be effectively performed over the plaster. At the end of about ten days the sling can usually be discarded, and the patient encouraged to employ the arm for more general use. The strapping should be renewed at the end of the first four days, and again from time to time as occasion demands. By the end of a fortnight all movements are usually possible, but care should be taken to avoid the increase of undue strain, as in lifting or pushing heavy weights. The parts should be kept supported by strapping for at least three weeks, even though no pain be experienced on movement. The advantages to be gained by adopting this method over the mode of treatment generally in use are firstly, entire freedom from that pain which is caused by keeping the arm and hand rigidly immobile, since the cramp during the first few days is often intense and far exceeds any suffering that may be experi-

enced at the seat of fracture. In addition, the subsequent stiffness of the elbow and forearm is no longer experienced, and as the arm is in use muscle wasting is avoided when the union is complete. The patient is able to dress himself normally during the entire period of convalescence, and can use the arm on the injured side for writing, feeding, and such simple actions, without fear of harm. Again, the period of disability is considerably lessened. The average period of disability according to other writers

strapped, and massage ordered. Two days later the pain had entirely gone, and the arm moved comfortably. Within 20 days he was able to ride gallops, and rode in a race a week later.

CASE 6.—Flat race jockey, fractured his left clavicle at Folkestone, and was attended to on the course. Seen same day as accident. Bandages had slipped, and the man was in great pain. Strapping applied, and massage ordered, which speedily relieved the pain. Restrained in three days. Uneventful recovery; patient was riding within three weeks of the date of injury.

FIG. 1.



First strip of plaster in position, with cotton-wool in axilla.

is put down as being between six and eight weeks. The average period in 20 of my cases, taken at random, was 20 days. When possible the patient should spend 12 hours flat on his back, especially where reduction is difficult, as the scapula being unable to rotate forward, the bones gradually drop into position and the deformity lessens.

A Series of Ten Cases.

I quote various cases as examples:—

CASE 1.—Amateur rider, steeplechasing, had a severe fall, the horse being killed. Fracture of left clavicle sustained, with much deformity. Reduced and put up by me the same evening, massage being ordered. A recent letter from this patient states: "I did the hat trick with my first three rides 15 days after the accident, on C—, B—, and A—, two of them very hard pullers too." The shoulder was kept strapped for another three weeks.

CASE 2.—Steeplechase jockey, fractured left clavicle at Sandown. Displacement very definite at the junction of the inner and middle third. Treatment by strapping and massage. He won a hurdle race within 14 days of the injury, and continued to ride as before.

CASE 3.—Fell whilst "schooling" and fractured left clavicle. When seen that evening was in great pain, as he was confined in bandages according to Sayre's method. Removal of these with substitution of strapping entirely relieved the pain. Massage ordered. Was riding over fences within 21 days, and won a race.

CASE 4.—Flat race jockey, fell during a race at Windsor and fractured the right clavicle. Was attended to on the course, and fracture put up in usual method. I saw him on the day of accident, strapped the shoulder, and ordered massage. Rode and won a race 17 days after the injury without ill-effects. He had some pain as the horse "yawed" at the post. Was strapped afterwards, but continued to ride regularly.

CASE 5.—Flat race jockey, sustained complete fracture of the left clavicle from fall of his horse in a race. I saw him six days after the accident; he was then in considerable pain, his arm being bound to the side in the orthodox manner. Deformity of bone still present at junction of middle and outer third. Bandages removed, fracture

FIG. 2.



Second and third strips of plaster in position.

CASE 7.—Fell whilst riding in steeplechase and fractured right clavicle. Seen day following accident. Had been put up at neighbouring infirmary in usual manner. Right hand and forearm swollen, and bruising over the seat of fracture. Fracture comminuted. Rest in bed, flat on his back for a few days advised. The bandages being removed, the shoulder was strapped and massage ordered. Pain in the forearm disappeared after the first day's massage, and swelling at seat of fracture gradually subsided; he was up and about in a week's time. He was perfectly sound in three weeks, but did not ride steeplechases for a month.

CASE 8.—Flat race jockey. Sustained complete fracture of right clavicle from his horse falling dead at Lincoln. Seen day after accident. He had been put up in the usual manner on the course. Complained of great pain in hand and forearm. The bandages were removed and strapping applied, and massage ordered. He made a normal recovery and was riding within 18 days of the accident.

CASE 9.—Steeplechase jockey, fell in hurdle race at Gatwick. Fractured right clavicle. Seen same day. Attended on the course. Comminuted fracture caused great pain; patient had a lump on the forehead. He was dazed, and vomited in the consulting-room. He was kept flat on his back for five days, the fracture being strapped and massaged as usual. At the end of a week, the effects of the concussion having passed off, the patient was allowed to get about as usual. He made an uneventful recovery, though the risk of falling prevented me from permitting him to participate in races for a month.

CASE 10.—Flat race apprentice, fell and fractured clavicle. Seen day after accident. Had been put up on the race course in the usual manner. Considerable displacement, much bruising, and in considerable pain. Patient was kept on his back for two days and shoulder strapped. Twenty-three days from date of accident I received a letter from his master saying that the boy was apparently sound, and had been riding as usual.

Commentary.

I have selected those cases whose subsequent history I have been able to watch. The quick recovery the majority have made is partly due to the healthy life they have to lead. The strain on

both shoulders in riding races, or fast gallops, is very severe, and for that reason I have taken riding as a test of soundness. All of these cases I have quoted showed unmistakable evidence of the lesion, with typical displacement, whilst in some the deformity was very considerable. It has been suggested that the freedom allowed the arm might tend to increase the deformity, or even lead to non-union. The results, however, as regards the ensuing deformity are no worse and no better than those obtained by

FIG. 3.



Four strips in position, covering entire surface of clavicle; massage can be performed over the plaster.

other methods, whilst in some 200 cases treated in the manner described I have seen only one case of non-union. This case, a jockey, was brought to me two days after the injury. He had removed the bandages within a few hours of being put up on the race course, and had used a sling. The inner fragment was lying uppermost, parallel with the sternomastoid, and the outer fragment showed every inclination to come through the skin. He had, it appears, been kicked by another horse on the clavicle, after it had been fractured by his fall. He was kept five days flat on his back, and I was able to bring the fragments into fair position. The radiogram showed extensive comminution, and a considerable gap existed between the two fragments. Sir Arbuthnot Lane saw him with me, with a view to operative measures, but he decided to leave it alone. The man now has fibrous union, with palpable movement at the seat of fracture. He has a strong, sound arm, and is still following his profession of steeplechase jockey.

I am convinced that experience will soon lead others to adopt this method, in preference to that so commonly employed, but as Zollner said: "The ancient wall of belief requires much siege artillery for its demolition," and a belief in the teachings of our student days is not easily upset.

Seymour-street, W.

OPHTHALMIC HOSPITAL, JERUSALEM.—The report of the Committee for 1922 records an extension of the hospital buildings which was opened for work last July, and by means of which the work in the out-patient department has been greatly facilitated. The number of new cases seen was 12,651, and the number of new cases admitted to hospital was 1268. The great bulk of the work, as in all eye hospitals in the East, consists in the treatment of trachoma and of acute conjunctivitis, but the refraction cases show a steady increase in numbers. In 1919 there were only 269. Last year the number relieved with spectacles had risen to 1148.

AN INVESTIGATION OF RENAL FUNCTION IN PATIENTS WITH RETINITIS AND HIGH BLOOD PRESSURE.

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RETINITIS associated with high blood pressure and renal disease has long excited the interest of physicians. The importance of the condition in diagnosis and prognosis is well known, but the nature of the process, its cause and method of production, is very imperfectly understood. For this reason we have thought it might be of interest to examine the data of those cases of retinitis in the London Hospital in which the results of investigation by the newer methods of estimating renal function were available. The number of patients with retinitis so examined was 21, but the result in two of these we have discarded, as they were examples of the condition occurring in pregnancy, a retinitis generally recognised as having a different course and significance. This report consists, therefore, of an analysis of 19 cases.

Scope of Inquiry.

It is to be clearly understood that in this paper we are not dealing with acute nephritis, subacute nephritis, or chronic nephritis with gross oedema (chronic parenchymatous nephritis). By subacute nephritis we mean those cases in which, following an acute attack, symptoms fail to clear up and the patients either pass into a state of chronic poor health or suffer from repeated exacerbations of the acute condition. All these forms of nephritis may lead to the occurrence of retinitis. No example, however, of any of these forms happened to occur in this series, and we are not concerned with them. They are all easily separated, by purely clinical methods, from that group of cases with high blood pressure, albuminuria, and little or no oedema somewhat indiscriminately labelled "chronic interstitial nephritis" and "cardio-renal disease," to which all our 19 cases belong.

Differentiation of Arterio-Sclerotic and Renal Retinitis.

During the course of the collection of these cases a discussion took place at the Royal Society of Medicine on the differentiation of arterio-sclerotic and renal retinitis.¹ In considering the results our first proceeding, therefore, was to separate our cases into two groups, one in which gross disturbance of renal function was evident and the other in which no such gross disturbance was found. The particulars of the cases in the two groups so separated are shown in Tables I. and II. Let us now analyse the data of these two groups of patients separated, it is to be understood, solely on the results of the tests of renal function. In Table I. are listed the particulars of nine patients showing gross disturbance of renal function. In all, the blood-urea was much increased, the phenolsulphone-phthalein excretion markedly diminished, and the urea-concentration test showed very feeble power to concentrate urea. Fixation of the specific gravity of the urine occurred in six of the seven cases in which this examination was carried out. Table II. shows the particulars of ten cases in which no such gross disturbances of renal function were found. In only two of these is the figure for blood-urea above the normal; phenolsulphonephthalein excretion, while generally diminished, is notably different from the figures in Table I., and the urea-concentration test, in striking contrast to the findings in the other group, gave in only one case a figure below the normal

¹ THE LANCET, 1922, ii., 1222, 1275.

2 per cent. In no case did fixation of the specific gravity of the urine occur.

Age and Cause of Death.

Such are the data on which separation into the two groups was made. A further analysis of the findings in these tables reveals, however, other striking differences, the most important of which, in our opinion, are the age of the patients and their mode of death. The average age on admission of the patients listed in Table I. was 33, in Table II. 49, a difference of 16 years. The mode of death was also strikingly different. All nine cases in the first group died within four months of admission to hospital. In one the mode of death is unknown; one died with cardiac failure and broncho-pneumonia. All the remaining seven died in uræmia. On the other hand, of the ten patients in the second group five are still alive at the time of writing, the longest time since admission being, however, only six months. Of the five who

two quite sharply defined groups.² The first of these consists of relatively young individuals with high blood pressure and gross loss of kidney function in whom death rapidly ensued usually in uræmia. The second consists of older individuals with still higher blood pressure, but less disturbed renal function, in whom life was relatively prolonged, and death, when it occurred, was from cerebral hæmorrhage or heart failure. What deductions can we draw from our analysis? What significance can we attach to this grouping?

There seem to be two possibilities: (1) that the two groups of patients represent different stages or different forms of the same pathological process; (2) that they result from different pathological conditions. It may be argued, for example, that the cases in Group 1 show merely the advanced stage of the condition seen in its earlier stage in Group 2. If this is the case, how does it come that the average age of the patients in Group 1 is 16 years younger than the

TABLE I.—CHRONIC NEPHRITIS.

No.	Age.	Sex.	Date of admission.	Duration of visual symptoms.	Oedema.	Blood pressure.	Albumin.	Casts.	Blood urea g. per 100 c.cm.	P.S.P.* % in 2 hrs.	Urea con. test (15 g. urea by mouth).	Fixation of S.G.	Remarks.
1	42	F.	3/9/22	9 mos.	S.	240/120	2/3	N.S.	0.436	0	c.cm. 18 = 0.84	—	Died, uræmia, 16/9/22.
2	25	F.	10/11/22	None.	S.	160/100	Cloud.	G. & H.	0.400	0	18 = 0.9	—	" " 7/12/22.
3	38	M.	8/8/22	2 mos.	N.	210/160	1/5	G. & H.	0.480	Trace.	124 = 1.14	Yes.	" " 13/9/22.
4	46	M.	14/6/21	1 year.	M.	225/150	1/5	G.	0.141	Trace.	104 = 1.1	Yes.	Died, broncho-pneumonia and heart failure, 26/9/21.
5	29	M.	11/5/20	—	N.	200/140	2/5	G. & H.	0.107	Trace.	—	Yes.	Died, uræmia, 15/9/20.
6	30	M.	16/8/20	3 mos.	N.	230/135	2/5	—	0.141	Trace.	—	Yes.	" " 7/9/20.
7	43	F.	28/12/21	2 mos.	S.	280/	1/6	G.	0.109	6	80 = 0.87	No.	" " 21/1/22.
8	23	M.	28/10/22	1 week.	S.	240/170	2/3	G. & H.	0.171	7	62 = 0.96	Yes.	" " 12/12/22.
9	25	F.	19/3/22	3 mos.	S.	210/160	1/5	"	0.120	7	58 = 1.25	Yes.	" " 17/5/22.

Average age, 33. Average systolic blood pressure, 220.

Oedema: S., slight; M., moderate; N., none. Casts: N.S., none seen; G., granular; H., hyaline.

TABLE II.—HYPERPIESIS.

1	54	F.	18/9/22	2 yrs.	SBL	290/170	1/3	G. & H.	0.080	15	93 = 1.86	No.	—
2	56	M.	17/11/19	3 mos.	N.	250/160	Cloud.	G. & H.	0.043	23	—	No.	Died, hemiplegia, 15/6/20.
3	51	F.	15/5/22	6 mos.	N.	250/170	Trace.	N.S.	0.040	32	68 = 2.1	No.	Died, cardiac failure, 7/22.
4	54	M.	8/5/22	1 year.	M.	210/160	1/8	H.	0.035	30	75 = 2.2	No.	" " 28/12/22.
5	52	M.	23/6/22	None.	(hf)	245/140	1/5	G.	0.060	12	95 = 2.0	No.	—
6	37	M.	19/10/21	3 mos.	N.	250/160	1/10	H.	0.030	30	95 = 2.3	No.	Died, cerebral hæmorrhage, 15/1/22.
7	43	F.	13/11/22	2 yrs.	N.	280/180	Cloud.	H.	0.020	48	6 = 2.28	No.	—
8	57	M.	1/12/21	2 mos.	N.	280/	Trace.	G. & H.	0.048	49	128 = 2.5	No.	Died, cerebral hæmorrhage, 12/11/22.
9	35	F.	15/9/22	None.	N.	225/160	None.	—	0.036	52	—	No.	Transient hemiplegia.
10	49	M.	11/8/22	"	N.	180/100	Trace.	H.	0.040	68	73 = 2.3	No.	—

Average age, 49. Average systolic blood pressure, 245.

Oedema: SBL, slight both legs; M. (hf), moderate (heart failure).

* NOTE.—The phenolsulphonaphthalein (P.S.P.) employed in these tests gives a low figure for the normal; 40 to 70 per cent. instead of the 60 to 90 per cent. given by that supplied by Hynson, Westcott and Dunning, on which most figures for the normal are based.

died the cause of death was cerebral hæmorrhage in three and in two cardiac failure, the longest interval between admission and death being seven months. In marked contrast to the other group, no death in uræmia has occurred. A further difference to which attention may be directed is the average systolic blood pressures. The average systolic blood pressure in Table I. is 220 mm. of mercury, in Table II. 245 mm.—that is, the patients showing the least disturbance of renal function have, on the average, the higher blood pressure. There are also minor differences to be noted in the frequency of small degrees of subcutaneous oedema and in the intensity of the albuminuria in the cases in Table I.

Significance of Grouping of Cases.

It would appear, then, that by our tests of renal function we have divided these cases of retinitis into

average age of those in Group 2? It is admitted that the number of cases is small, but the difference would seem too great to be accidental. It may be suggested that the greater renal damage in the younger group of individuals has occurred because their younger vessels are less prone to the degenerations which follow prolonged high blood pressure, and their hearts less likely to fail, so that there is time for profound renal destruction to occur; whereas in older patients death results from cardiac failure or vascular degeneration leading to cerebral hæmorrhage before the process in the kidney has had time to achieve its final stages. If this were so, and the cases in Group 1 represented the end stage of a single process, we should expect that

* The authors wish to emphasise that they are not dealing in this paper with acute nephritis, subacute and recurrent nephritis, or chronic nephritis with gross oedema. No example of any of these conditions occurred in this series.

in them the blood pressure would be highest. But such is not the case, for the average systolic pressure in this group of patients, with most marked renal destruction, is actually 25 mm. less than in the patients in the other group.

This observation is in agreement with the experience of Prof. H. M. Turnbull, Director of the Pathological Institute of the Hospital, who informs us that at post-mortem examination of subjects showing evidence of renal destruction and high blood pressure these two findings are usually, in degree, in inverse proportion to one another. That is, that cases showing the most profound degrees of renal destruction show usually only moderate degrees of cardiovascular hypertrophy, while in cases in which the cardiovascular hypertrophy is extreme the amount of renal destruction is usually, relatively, slight or moderate. Considering still the first possibility, that of a single process, a third suggestion might, perhaps, be offered—namely, the patients in Group 1 may represent those in whom some previous illness, scarlet fever, or an earlier acute nephritis, has left the kidney more susceptible to unfavourable influences, for example, the prolonged high blood pressure. This argument is more difficult to meet, evidence to support or confute it is difficult to obtain, and we are not in a position to deny the possibility. Personally we feel that the unsatisfactory nature of any of the above explanations forces us to consider the second possibility, that the two groups of cases represent the result of different pathological processes.

This we believe to be the case. We consider that the evidence we bring forward strongly supports the view that the patients in Group 1 are cases of primary renal disease with secondary high blood pressure, and that those in Group 2 are cases of high blood pressure with secondary renal damage. Such a difference in ætiology explains satisfactorily the differences in age, in degree of high blood pressure and its accompanying cardiovascular hypertrophy, in amount of renal damage, and in the mode of death. That the patient with hyperpiesis eventually develops, owing to degenerative changes occurring in his hypertrophied renal vessels, degenerative changes in the kidneys is generally recognised. It is, perhaps, not so generally realised that retinitis is also a frequent result.

We believe, then, that it is possible to separate, in this series of patients with retinitis, two very distinct underlying conditions—chronic interstitial nephritis, and (enlarging the use of Clifford Allbutt's term) hyperpiesis. We believe, also, that a similar differentiation can be made in most cases of high blood pressure. In chronic interstitial nephritis a patient in previous good health is taken, rather suddenly, seriously ill and is found even at the time of first examination to have gross deficiency of renal function. Progress is steadily downward, and death frequently occurs within a few months, and usually in uræmia. In hyperpiesis a longer period of ill-health usually precedes admission to hospital, the patients are generally older, and, on investigation, show relatively little disturbance of renal function. Life is generally more prolonged, and death, when it occurs, is usually from heart failure or cerebral hæmorrhage.

In this series of 19 cases of retinitis, nine, we believe, were patients with chronic interstitial nephritis, and 10 were patients with hyperpiesis. The number of cases is too small to justify the drawing of conclusions, but they suggest that hyperpiesis is a more common cause of retinitis than chronic interstitial nephritis. We believe hyperpiesis to be a much more common disease. Whether the cause of retinitis is the same in both these conditions and what is its nature we are quite unable to say. The only common factor in the two conditions would appear to be the high blood pressure.

Morbid Anatomy of the Conditions.

It is obvious that the study of this series of cases is very deficient in one important particular—namely, morbid anatomy. Unfortunately post-mortem examinations were obtained in only three of the 14 fatal cases: two of chronic nephritis (Nos. 2 and 4, Table I.),

and one of hyperpiesis (No. 6, Table II.). Prof. Turnbull kindly made a careful study of these three cases. He found in Cases 2 and 4 (chronic nephritis) "very great" destruction and fibrosis of the kidney, while in Case 6 (hyperpiesis) these changes were only "considerable." In Case 2 cardiovascular hypertrophy was "moderate" and intimal degeneration "slight"; in Cases 4 and 6 cardiovascular hypertrophy and intimal degeneration were "great." From the naked-eye examination at necropsy Prof. Turnbull considered the destruction of the kidneys in Case 6 to be ischæmic, in Cases 2 and 4 inflammatory; he failed, however, to find any special feature in the histology confirming this differentiation.

Shaw Dunn³ has recently appealed for a clearer classification of the pathology of chronic nephritis, and has attempted in particular to separate the "primarily contracted kidney" of chronic nephritis from the "arterio-sclerotic" resulting from high blood pressure. This study is the beginning of an attempt to attain by clinical investigation the same desirable result.

In conclusion, we should like to express our gratitude to Prof. Turnbull and to those physicians of the London Hospital who permitted us to investigate their cases.

A NOTE ON THE GERMICIDAL QUALITIES OF SODIUM DI-IODOSALICYLATE (DIOSAL).

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THIS compound was made for me by my colleague, Dr. J. Algar, D.Sc., first assistant to the professor of chemistry, University College, Dublin, who was associated with me in a research into germicidal drugs for the treatment of tuberculosis under the auspices of the Medical Research Committee. Dr. Algar supplies me with the acid, which is then dissolved in distilled water, to which is added the equivalent amount of decanormal sodium hydroxide. The solution used is 1 per cent.; it was found to have a very powerful germicidal action on *Staphylococcus aureus*, no growth occurring after treatment of a suspension containing 1000 million per c.cm. for ten minutes. The technique was as follows:—To 5 c.cm. of a 2 per cent. solution of diosal in a centrifuge tube was added 5 c.cm. of a suspension of *Staphylococcus aureus* (2000 million per c.cm.). The tube was then centrifuged for ten minutes, the supernatant fluid pipetted off, and the action of the diosal stopped by the addition of sterile distilled water and centrifuged again. The deposit of microbes was then inoculated on agar slopes. The experiment has been repeated many times, and no staphylococcus has ever been found capable of surviving 1 per cent. solution for ten minutes. All the catarrh-producing microbes, such as *Micrococcus catarrhalis* and streptococci, were found to be killed just as rapidly. The effect on the tubercle bacillus was very different, exposure of a concentration of bovine bacilli of 1000 million to the cubic centimetre for even 24 hours had no germicidal effect whatever; in fact, the effect was an improvement of growth—a very unexpected result. It was found in rabbits that a 1 per cent. solution produced no sign of irritation of veins or intravascular clotting when given intravenously. A rabbit weighing 5 lb. could take 1.5 c.cm. daily without obvious effect; 2 c.cm., however, made the rabbit ill, the animal passing very little urine.

Use of Diosal in Human Beings.

The drug produced no sign of intravital germicidal action on rabbits infected with bovine tubercle

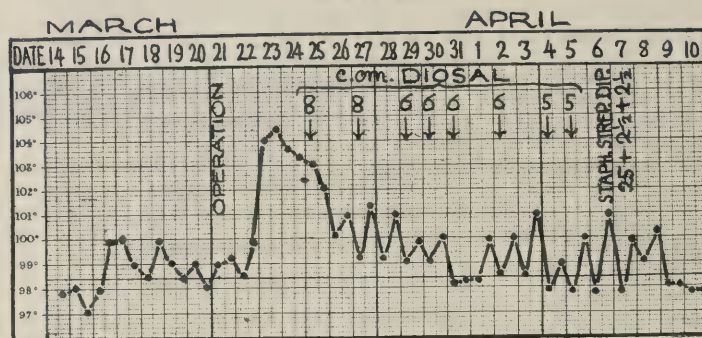
³ J. S. Dunn; Brit. Med. Jour., 1922, ii., 1166.

bacilli either intravenously, subcutaneously, or by the inhalation of atomised droplets of water containing tubercle bacilli in suspension. Neither, however, did it appear to hasten their deaths, as might possibly have been expected by its increasing the growth of the bacillus in vitro. It has not been so far possible to reproduce the human pulmonary tuberculosis in rabbits—that is, a mixed infection with the tubercle bacillus and catarrh-producing microbes. It appeared to be legitimate, however, since the animal experiments were harmless, to try the product on human beings, especially on human beings so diseased that their lives were in imminent danger. On such a case

with antiseptics it was not feasible to take cultures from the stump. I made blood cultures and isolated streptococci in pure culture. I at once gave him 8 c.cm. of diosal pending the making of an antigen. He showed so much improvement I continued the diosal (see Chart 1) although the antigen was ready. About April 4th, 1922, the wound, which had so far had little discharge, began to produce pus and from this an autogenous antigen was made, with the result that his temperature became normal and remained so 48 hours after the first dose. The patient made an excellent recovery and has a perfectly sound stump.

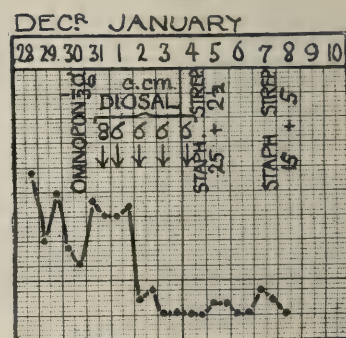
CASE 2.—This was a case of moderately severe erysipelas of the head and face. Chart 2 speaks for itself. The autogenous antigen was given to prevent relapse.

CHART 1.



Temperature in a case of wound infection.

CHART 2.



Temperature in a case of erysipelas of head and face.

diosal was first tried. A young man under treatment for tuberculosis of both lungs with specific antigens and intravenous injections of iodoform in ether developed a double pneumonia after a visit from a friend who had a severe cold. His temperature ran up to 105° F. Diosal was given daily intravenously in 3 c.cm. doses, and as his temperature came down, as it did rapidly by lysis, the doses were reduced to 2 c.cm. and then 1 c.cm. daily. His immunisation was then resumed with a fresh catarrh antigen containing the new microbes. He made a remarkable recovery and lived for six years afterwards, doing light duty, and finally dying suddenly of "secondary" hæmorrhage.

I have used diosal in many similar cases with very remarkable results, and also in rheumatic conditions, both acute and chronic. I find it often very rapidly removes pain, and so I frequently employ it for this purpose while the specific antigens are being prepared. One has to be careful not to use it until the microbes are isolated. I had occasion to take another specimen of urine from a rheumatic case owing to the antigens which were being prepared for him having been contaminated; I found the urine sterile and had to stop the diosal for three or four days before I could get the infecting microbes, *S. aureus* and streptococci, to grow again. I hope diosal will have extensive usefulness in rheumatic fever as an adjuvant to immunisation.

While serving with the R.A.M.C. in Malta during the war I tried the drug in 3 to 5 c.cm. doses, given intravenously, in some severe cases of infected wounds and septic gangrene due to frost-bite. The drug appeared to act in a remarkable fashion, the temperatures falling rapidly. In two cases in which the drug did not appear to have this effect I found paratyphoid B bacilli in the blood. Diosal does not appear, therefore, to kill these microbes intravitaly.

Illustrative Cases.

The power of diosal as an intravital germicide was finally demonstrated by a desperate case of wound septicæmia.

CASE 1.—A male, aged 20 years, was admitted to Dr. Stevens' Hospital under Mr. W. S. Haughton on March 14th, 1921, with his right leg shattered by a gunshot wound. When I saw him on Dec. 24th he was blanched, severely dyspnoic, temperature 103.6° F., pulse 144. His leg had been amputated, and as it had been thoroughly treated

Diosal given intravenously does not appear to have much effect on local suppuration as in wounds, but I have reason to think it may prove very useful as a local antiseptic, a germicide that will kill microbes but not tissue cells.

A SUGGESTED ÆTIOLOGY OF BAKERS' DERMATITIS.¹

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FROM time to time cases are seen of more or less severe dermatitis on the hands and forearms in men and women engaged in some particular industry. Prosser White in his excellent book² has classified these forms of dermatitis; I here propose to deal only with dermatitis in bakers. This condition is of considerable importance to the individual, because of the distress of symptoms and loss of work, and to the employer and insurance companies on account of the question of compensation and the loss of a skilled workman. I have known cases where the baker has continued to follow his employment of mixing bread, despite the fact that his hands and arms were weeping, rather than lose his work and run the risk of failing to obtain compensation. The Ministry of Health has recently been investigating the condition, but I believe their findings have not yet been published.

Symptoms.

The symptoms of the disease are those of an eczema or dermatitis. The patient for a variable length of time follows his employment of mixing the dough until one day he feels a burning sensation on the ulnar and flexor surfaces of the forearms and the backs of the hands, associated with some degree of pruritus. This is followed by a small papular eruption, which becomes vesicular and finally breaks down and weeps freely and is associated with very marked itching which becomes worse when the arms are heated. The areas,

¹ A paper read before Liverpool Medical Institution.

² R. Prosser White: Occupational Affections of the Skin. London: H. K. Lewis. 1915.

which vary considerably in size, become secondarily infected, usually by a form of staphylococcus, and scattered deep-seated pustules are then found. These symptoms continue as long as the patient remains at his work.

Bakers' Materials.

There have been various suggestions made as to the aetiology of the disease, one being the presence of a parasite in the flour, giving to the disease the name of "bakers' itch." Latterly it has been suggested that the patient is sensitised by the flour protein. Again, it has been thought that the presence of chemicals, calcium persulphate and nitrites, so-called "improvers," in the flour, have been responsible for the condition, or that the yeast or some other fungus sets up the dermatitis. Any one of the above might have been the important factor in producing the condition, and in this investigation I found it necessary to examine each of them.

Flour.—With regard to the flour, I visited two of the largest flour mills in the country. In each mill I found a male welfare supervisor, who assured me that cases of skin trouble on the hands and arms of workers were unknown. I also spoke with the workmen, and obtained the same reply. The men were covered from head to foot with flour dust day after day, so I felt justified in concluding that the flour itself was not the direct cause, and that there was no question of direct sensitisation by the flour protein. I obtained samples of the flour from the bakehouses in which the patients were working; and these I submitted to Prof. W. H. Roberts, of Liverpool, who very kindly investigated them for me, reporting that he found no chemicals, acari, or fungi present.

Yeast.—With regard to the yeast, inquiries made at the distillery revealed no instances of dermatitis or eczema in the men engaged in manufacturing or packing the yeast. Incidentally, I may mention that a manager of a distillery had heard that yeast was good for boils and also acted as a preventive; he was not suffering from furunculosis at the time, but he thought that having the yeast he might as well take some. After taking it for some weeks he commenced with a carbuncle which took three months to heal, so he informed me.

Bakers' Methods.

I next directed my attention to the conditions and methods under which the bread was made. It will be found on inquiry from a patient that he is employed in a bakehouse where the dough is mixed by hand. I have not found bakers' dermatitis in men employed in bakehouses where the bread is mixed by machinery. The method of mixing is as follows: Two sacks of flour, weighing about 280 lb., are placed in a trough; into another trough are placed 9 lb. of salt and 24 gallons of water; 4½ lb. of yeast are mixed with a gallon of water in a bucket and added to the trough containing the salt and water. The mixture of salt, yeast, and water is then mixed by use of the hands and arms and aerated by raising the mixture with a can and allowing it to fall from a height into the trough. A quantity of the salt-yeast mixture is added from time to time to the flour in the other trough and this is kneaded with the hands and forearms. This process is continued until the salt-yeast mixture is used up, and the dough mixed and ready for weighing and baking.

This routine is followed by the baker day after day and week after week. He is using a solution of 9 lb. salt to 25 gallons of water—that is, approximately a 3·6 per cent. solution, or about 17 gr. to the ounce. The temperature of the water used is between 70° and 80° F., and the temperature of the bakehouse is about 110° to 120° F. From time to time the baker has to leave his mixing of the salt and yeast mixture to attend to his oven, and my patients tell me that the salt crystallises on their hands and arms in the interval. These crystals are worked into the skin in the process of kneading.

An "Idiosyncrasy" for Salt.

It seems to me, therefore, that the salt may justifiably be regarded as the direct cause of the condition,

but the patient must display an idiosyncrasy, if I may be pardoned for using the word, for the salt, as the condition is not found in all bakers.

It is interesting to note that dermatitis occurs in people other than bakers who are habitually engaged in the handling of salt—for example, herring salters and packers, and rock-salt workers. The important fact remains that a man suffering can be cured under simple treatment on being removed from his work if there are no secondary symptoms, but that on his return to work he will relapse. I think that he is entitled to compensation, as the Act states that any powder or liquid used in the process of his work entitles a man to compensation if the powder or liquid can be shown responsible for the condition. This is an important point for the insurance companies because it means that any insured baker suffering from dermatitis will, as long as he continues to work, be off for long periods and draw compensation, whereas in some other employment he would be able to work without this disadvantage.

I do not in this short note propose to discuss treatment, but I think that a measure of prophylaxis would be found in the provision of a rose spray of running fresh water under which the man might rinse his arms from time to time, especially before going near the oven, and at intervals during the kneading.

THE EFFECT OF DETOXICATED VACCINES ON THE PERSISTENCE OF THE DIPHTHERIA BACILLUS.

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AT various times many remedies have been put forward to effect the cure of the diphtheria carrier. The result up to the present has not been satisfactory, although there appears to be a distinct hope of success in surgical methods of treatment, particularly in the case of faucial carriers. The administration of vaccines has met with varying results in the hands of different investigators. The vaccine used has been in some cases an autogenous, in others a stock, and more recently a detoxicated Klebs-Löffler preparation. The dosage administered has varied from 10 millions or less up to, in the case of the detoxicated vaccine, the single huge dose of 350,000 million organisms. The method of administration and the intervals between doses differ also. We have a choice of subcutaneous, intramuscular, or intravenous routes, and any interval of time between doses that we please, though injections repeated at weekly or three-day intervals seem to be most favoured.

In the administration of any vaccine the dosage is most important. It should always aim at being the largest possible, consistent with the absence of any marked general reaction. In the use of ordinary specific vaccines the dosage is very definitely limited, owing to the production of unpleasant constitutional symptoms. This is presumably due to their high toxin content. With these toxic vaccines the largest possible dose is usually small and inadequate, and the amount of antibody formation is correspondingly minute. In the case of detoxicated vaccines it has been asserted that we have a product from which the toxic factor has been removed, and yet the immunising property retained.

Fraser and Duncan,¹ using detoxicated Klebs-Löffler vaccine, met with some considerable measure of success in the treatment of chronic diphtheria carriers. F. M. Wood² claims that by employing his vaccine antitoxin treatment of diphtheria the

¹ Fraser, A. R., and Duncan, A. G. B.: THE LANCET, 1920, II., 994.

² Wood, F. M.: New York Med. Jour., Jan. 10th, 1920.

production of toxin is stopped from the time that the vaccine is administered; the antitoxin neutralises the toxin already formed; in carriers the bacilli are destroyed. He states that in cases of diphtheria the Klebs-Löffler bacillus disappears from the throat within ten days, thus shortening the quarantine period.

If such results were attainable by using moderate doses of an ordinary diphtheria vaccine it appeared to me that a detoxicated preparation used on the same principle would perhaps be even more effective. This I proceeded to test.

Dosage.—Reactions.

The question of dosage had now to be decided. J. L. Brownlie,³ using an ordinary diphtheria vaccine, successfully cleared up some 50 convalescent cases, his dosage varying from a total of 10 to 200 million bacilli. Wood administered three doses of 300 to 500 million bacilli at three-day intervals. Fraser and Duncan, using detoxicated Klebs-Löffler vaccine, obtained negative cultures in two chronic carriers after a total dosage of 8900 million and 20,700 million bacilli respectively.

The routine dosage of detoxicated Klebs-Löffler vaccine I adopted was an initial dose of 2000 million bacilli, followed at three-day intervals by two more doses of 4000 and 8000 million bacilli respectively, making in all a total of 14,000 million organisms. This dosage was adhered to irrespective of age or severity of disease. The initial dose was given on the day of admission in addition to the usual treatment by antitoxin. All the injections were given subcutaneously. Vaccine-treated cases were alternated with control cases, which did not receive vaccine, until some 60 of the latter had been obtained, after which every case was treated with vaccine. No selection was exercised as to which case was to receive vaccine and which was not. They were strictly alternated. A certain percentage of cases sent in to the hospital notified as diphtheria were found to be follicular tonsillitis, Vincent's angina, &c., and these had to be excluded from the series.

The local reaction was very slight, and caused no discomfort beyond some slight tenderness to touch. In all, some 500 doses of vaccine were injected subcutaneously, ranging from 2000 million to 20,000 million organisms, and in no case did constitutional symptoms arise.

Method of Estimating Total Persistence of Bacilli in Convalescents.

Cultures from fauces and nose were taken at weekly intervals in both series of cases until a negative culture was obtained. Cultures were then taken on alternate days until three consecutive negatives were obtained. If a positive culture followed a negative result, as often happened, the culture-time reverted back to weekly intervals until another negative was obtained, when cultures at two-day intervals were again started. If three consecutive negative cultures were obtained early in convalescence, some considerable time before the patient was fit to be discharged, then cultures were again examined in the week previous to discharge. Many cases thus had five, and some even seven, consecutive negative cultures as evidence of their freedom from diphtheria bacilli. The day half-way between the date of the last positive culture and the first of three or more consecutive negative examinations was taken as the day on which the patient last harboured the diphtheria bacillus. The results thus obtained gave the number of days the diphtheria bacillus persisted in the throat or nose of the patient after admission to hospital. In working out the total length of persistence of bacilli, I have calculated the number of days from the date of the first symptom to the final disappearance of bacilli, as judged by at least three consecutive negative cultures examined on alternate days.

³ Brownlie, J. L.: THE LANCET, 1920, i., 706.

1. Effect of Vaccine on Time of Disappearance of Bacilli.

Does the diphtheria bacillus disappear at an earlier date from the throat and nose of the vaccine treated case than from that of the non-vaccine treated case? In a series of 207 clinical and bacteriological cases of diphtheria, 146 were treated with detoxicated Klebs-Löffler vaccine as described above, whilst 61 were control cases. Both series of cases were adequately dosed with antitoxin, according to the severity of the disease. (Table I.)

TABLE I.

A = Non-vaccine cases. B = Vaccine cases.

	Day of disease on admission to hospital.												
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
A ..	3	10	16	16	7	3	1	3	0	1	0	0	1
B ..	3	32	34	40	18	7	4	4	1	1	0	1	0

The mean number of days of illness previous to admission to hospital in 61 non-vaccine cases was 3.96 days, and in 145 vaccine cases 3.77 days.

Dividing the cases up into those admitted up to, and on the fourth day of illness, and secondly, those admitted later, we find the result given in Table II.

TABLE II.

Cases admitted—	Non-vaccine cases.	Vaccine cases.
First to fourth day of illness inclusive	Per cent. 73.77	Per cent. 75.35
Fifth day of illness and later	26.23	24.65

The figures in Table II. show that treatment was started on approximately the same day of illness in both series of cases.

With regard to the severity of the cases in the two groups as judged from the amount of antitoxin administered, we find the result given in Table III.

TABLE III.

Cases receiving—	Non-vaccine cases.	Vaccine cases.
6000 units of antitoxin or less	Per cent. 70.00	Per cent. 76.72
More than 6000 units of antitoxin ..	30.00	23.28

The figures in Table III. show a slightly higher proportion of severe cases in the non-vaccine group than in the vaccine group.

The rate of disappearance of diphtheria bacilli is shown in Table IV.

TABLE IV.

Mean persistence of diphtheria bacilli in throat or nose after disappearance of membrane.

In 55 non-vaccine cases 16.51 days.

In 144 vaccine cases 14.08 "

Mean persistence of membrane.

In 55 non-vaccine cases 6.47 days.

In 144 vaccine cases 6.53 "

The duration of membrane is calculated from the day of the first symptom to its final disappearance.

Mean persistence of diphtheria bacilli in throat or nose from first symptom to final disappearance.

In 55 non-vaccine cases 22.98 days.

In 144 vaccine cases 20.61 "

Mean persistence of diphtheria bacilli in cases of nasal diphtheria.

In 4 non-vaccine cases 36 days.

In 13 vaccine cases 39 "

* One case still harboured diphtheria bacilli 120 days after admission to hospital.

Table V. shows percentage rate of disappearance in successive seven-day periods.

TABLE V.

Days from onset of disease.	Non-vaccine cases.		Vaccine cases.	
	Number of cases which became negative in each week.	Cumulative percentage.	Number of cases which became negative in each week.	Cumulative percentage.
0-7	6	11	10	7
8-14	14	37	51	43
15-21	7	50	23	60
22-28	13	74	25	77
29-35	4	81	16	89
36-42	6	93	6	93
43-49	1	94	6	97
50-56	3	100	0	97
57-63	—	—	3*	99

* One case with diphtheria bacilli still in nose 120 days after first symptom.

2. Effect of Vaccine on Persistence of Bacilli in the Convalescent.

Does the administration of vaccine prevent the prolonged persistence of diphtheria bacilli in the throat and nose of the convalescent case? From Table V. we see that three cases harboured bacilli up to the eighth week. Of these, two were faucial

carriers and one nasal. One case treated with three doses of vaccine, a faucial and nasal diphtheria on admission, still harboured virulent diphtheria organisms in the nose 120 days after admission to hospital.

Conclusions.

The administration of detoxicated Klebs-Löffler vaccine in the particular manner and dosage I adopted (a) has no appreciable effect in hastening the disappearance of the diphtheria bacillus from the throat or nose of the diphtheria convalescent, and (b) does not prevent those cases of prolonged persistence to which, after an arbitrary period of three months, we apply the term "chronic carrier."

I might mention that, so far as could be observed, and taking into account the small number of cases dealt with, the administration of vaccine appeared to have no influence on the clinical course of the case.

It is with pleasure I express my thanks to Dr. C. B. Ker, medical superintendent, City Hospital, Edinburgh, for the facilities he placed at my disposal, and his unfailing interest; also to Messrs. Genatosan, Ltd., who very kindly kept me supplied with detoxicated Klebs-Löffler vaccine.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY: ANNUAL CONGRESS.

THE Annual Congress of the Ophthalmological Society of the United Kingdom was held on April 26th, 27th, and 28th at the House of the Royal Society of Medicine and (for the clinical meeting) at the London Hospital. The chair was occupied by the President for the year, Dr. A. MAITLAND RAMSAY (Glasgow).

Opening Address.

The PRESIDENT delivered his inaugural address, choosing as his subject the debt which general medicine owes to ophthalmology. He said it was easier for most men to trust in authority than to exercise independent judgment, but the trend of modern progress was to appeal less and less to authority. Specialism was the natural sequel of increase in knowledge, and it should be symbolic of the highest form of efficiency. The tissues of the eye were so delicate, its structure so complicated, its diseases so numerous and so frequently followed by disastrous results that it was no matter for wonderment that oculists had existed from time immemorial, though in quite early days their claim to practise the speciality were very poor, as they had not acquired the general principles of medicine and surgery. The specialist in medicine must combine the diagnostic skill of the physician with the dexterity of the surgeon, and add that special knowledge which gave him power to reach further. It should be the aim of every specialist, by reading and frequent visits to a general hospital, to keep in touch with medicine, at least along its most important lines of advance. But there should be no hurry, as that might lead to specialisation too early, to the cultivation of one department to the exclusion of others. The study of ophthalmology, he contended, constituted the best discipline in exact observation in the whole medical curriculum: it was, indeed, an education in itself, for absolute precision was of the first importance. It was a great aid, too, to a methodical investigation of diseases of the nervous system. Such a purely ocular condition as optic atrophy, ocular palsy, or loss of the pupillary light reflex might lead to the diagnosis of tabes dorsalis. One patient he saw had been blind from optic atrophy 20 years before the onset of the more widespread manifestations of disease of the spinal cord. Likewise the study of the eyes might give

decisive evidence of disease of brain or kidneys. Homonymous hemianopsia might be the only proof remaining of a past cerebral hæmorrhage, and its recognition where paresis had been slight and transient would prevent the physician falling into error, either in regard to diagnosis or prognosis. On account of the transparency of its structures, the eye had always been the hunting-ground of the pathologist; pathological changes usually hidden from view could be seen and watched in the eye from day to day.

For some years he had been working with Sir James Mackenzie, to whose teaching he owed a great deal of inspiration. He had been struck by the similarity of action of ciliary muscle and cardiac muscle. In both, the limits of muscular capacity must be respected and the amount of work to be done should be adjusted accordingly. Of all the unstriped muscles in the body, it was only the ciliary muscle and the cardiac muscle which could be forced by the will to continue working long after Nature had called for rest; the former of these was active all through the waking hours, and the latter was incessant. The reserve power of both became less as age advanced. Loss of power in the eye could be measured and glasses prescribed accordingly; but in the case of the heart which was using up its reserve, all that could be done was to limit its work in accordance with its capacity. The power of accommodation could be regarded as a fair index to the general health. In emmetropes who were robust, the need for spectacles could be delayed beyond the usual age, just as the heart of some elderly people permitted them to play strenuous games; but in them the rapid onset of presbyopia was always a sign of failing health, and that the person was not likely to live much longer. Adults often complained of their eyes after influenza, and children often suffered from their eyes for the first time after measles or scarlet fever; in fact, sight was quickly affected in all disorders of the body. Inability to use the eyes for close work on account of excessive pain, with hyperalgesia of the skin of the scalp, were symptoms in every way comparable with those present in angina pectoris. The acute symptoms might not be manifest until some hours after the causal effort.

In conclusion, he said the gain to scientific medicine would indeed be great when the ophthalmologist coöperated closely with the family doctor and kept himself informed of the subsequent medical history of patients who had consulted him on account of failing sight, and when, on the other hand, the general practitioner brought his medical knowledge, experience, and common sense to bear on all the ophthalmological problems with which he might be confronted in his work.

Mr. E. TREACHER COLLINS read a paper on
The Aetiology of Angeoid Streaks in the Fundus Oculi.

He said a comparison of the arrangement of these streaks in the different recorded cases showed that they presented certain common characteristics, which could only be accounted for by there being some anatomical factor upon which their distribution depended. Their arrangement, he showed, corresponded closely to that of the circle of Zinn of the short posterior ciliary arteries around the optic disc, and of the main branches proceeding from it. Ophthalmoscopic observations by several different writers showed the undoubted hæmorrhagic origin of these streaks. The hæmorrhages from which they had been seen to arise were never situated in front of the retinal vessels, nor were they flame-shaped like retinal hæmorrhages, but presented the characteristics of subchoroidal or interchoroidal hæmorrhages. Blood effused between the choroid and sclerotic, due to its slow absorption, would, like blood stagnant in other parts of the body, tend to give rise to insoluble crystals of hæmatoidin and hæmosiderin. These, if deposited in the perivascular spaces around the branches of the short ciliary arteries, would account for their pigmented appearance when viewed ophthalmoscopically.

The other fundus changes commonly met with in association with angeoid streaks, such as haze or pigmentation of the retina, various degrees of atrophy of the choroid, &c., were also, he said, adequately explained as the outcome of subchoroidal hæmorrhage. There was not yet sufficient evidence as to why patients suffering from this affection should have choroidal hæmorrhages.

Consecutive Cases of Cataract Extraction by Barraquer's Method.

Mr. R. AFFLECK GREEVES and Mr. R. FOSTER MOORE read independent papers on this subject.

Mr. Greeves's contribution was based on 49 patients from whom he removed, or attempted to remove, the lenses by Barraquer's method. In two cases he removed the lens from each eye, making the total number of lenses 51. The cases he divided into three groups. In Group 1 (31 cases) the lens was successfully extracted in its capsule. In Group 2 (7 cases) the capsule broke during the operation, but he was able to extract the greater part of the lens substance with the suction instrument, the capsule left behind being subsequently needled in the usual way. In the third group (13 cases) the lens could not be delivered by the suction instrument, and the use of the scoop was necessary. The cases in the second group mostly ran the same course as those after extraction by the old method, and in each case the secondary cataract was needled. In one, needling was a failure, and he proposed to perform iridotomy. In all the 13 cases a scoop was used. In the majority very little vitreous was lost, and on the whole he did not regard the visual results as unsatisfactory. The smallness of the vitreous loss was probably due to the lens being already dislocated forwards. In one case the cataract was hyper-mature and the zonule weak. If a complete iridectomy had been done, the corner of the coloboma might become caught in the edge of the cup and prevent extraction. Another possible reason was the giving way of the lens capsule after the lens was dislocated. A further cause for failure was an unknown variability in the negative pressure obtainable due to the changes in strength of the electrical current which actuated the motor. He entered into the technique of the operation, and gave particulars of each of the 51 lenses treated. In conclusion he said his view was that the result of a successful intracapsular extraction by this method left nothing to be desired. The pupil was black and free of membrane, the media were clear, the visual acuity was excellent, and there was no undue amount of astigmatism. On the other hand, however, the method had shown itself to be less certain in its results than extraction without the capsule.

Mr. Foster Moore's paper was based on 38 cases; he had excluded 6 in which he operated with an improvised method of producing the vacuum before the Barraquer apparatus was available. Concurrently with doing this operation at Moorfields, he had been, at St. Bartholomew's Hospital and in private, carrying out the extra-capsular method, and this enabled him to judge the better of the respective merits of the procedures. He described a modification of Barraquer's instrument which he had been using; this enabled more delicate manipulation to be carried out, and had no valve which could get out of order. His chief difficulty had arisen from the separation of the cup from the lens when traction had been applied, so that in some cases the instrument had to be re-applied a number of times. Sometimes rupture of the capsule had ensued, sometimes recourse had to be had to the cystotome or scoop. He was sure some of the difficulties had been due to defective suction; in the earlier cases it was not appreciated how poor the suction was. In the latest Barraquer instrument a manometer was incorporated—a great gain. Of the 38 cases, 22 could be said to have had a quite successful result, the lens being removed entire in its capsule, and there were no difficulties or complications at the time. In 5 others the lens was removed in its capsule, but there was some loss of vitreous. Thus there were 11 cases in which he failed to remove the lens with the instrument, and other means of doing so had to be resorted to. In 7 cases the lens was expressed after either rupture of the capsule by the instrument, or after cystotomy; and in 4 cases the scoop had to be resorted to. In 9 cases in the series there was loss of vitreous. In one, suppurative occurred and evisceration was performed. In every other case some useful vision at least resulted.

He proceeded to discuss the advantages and disadvantages of the method. Among the advantages were that the whole capsule was removed with the lens, tags of it could not become incarcerated in the incision, and, further, no secondary needling operation was necessary. An important advantage, also, was absence of post-operative iritis. And it was gratifying to see a uniform black pupil after the operation. The outstanding disadvantage of the method was the frequency of vitreous loss and its consequences. When such loss occurred he did not doubt that the prognosis, both immediate and remote, was worse than when there was no such loss. In 23·7 per cent. of his cases there was loss of vitreous. And a very important result was that the welling of the vitreous into the wound carried the pillars of the iris into the incision, and a deliberate attempt to replace them resulted in further loss. And should any secondary operation be needed in the first day or two, the risk of vitreous loss again became important. The danger, however, was much minimised by paralysing the orbicularis with novocaine. In Barraquer's method the lens was drawn out of the eye, not expressed from it; therefore a slight negative pressure was developed within the globe, so that the vitreous tended to suck back rather than to follow the lens, and this might render loss of vitreous more frequent than would otherwise be the case. And in many cases there was need for a complete iridectomy. Altogether, he considered that the operation had in it a considerable element of danger, especially in the matter of vitreous loss, so that for general use it was inferior to the older method. But for immature cataracts and sclerosed lenses the Barraquer method had distinct advantages of its own.

Mr. MALCOLM HEPBURN commended the courage and enterprise of the readers of these two papers, but remarked that the success of this operation depended largely on a machine rather than upon the surgeon's personal skill. Therefore it was not surprising that some of the unsatisfactory results were ascribed to deficiency in the electric current. A further objection was that the instrument had to be held so tightly that it interfered with delicate movements. He did not think the Barraquer method was likely to replace the older operation.

Mr. HARRISON BUTLER emphasised the value of paralysis of the orbicularis muscle by novocaine. Since he saw Mr. Foster Moore do this, he had himself carried it out in every case, as a routine. It gave the surgeon a sense of security and was a comfort to the patient.

Mr. J. H. FISHER discussed the mode of action of the original Barraquer instrument and of the recent modifications.

Mr. LESLIE PATON asked to what extent the operators by this method depended upon the rocking movement of the lens so as to secure the abolition of the vacuum between the back of the lens and the hyaloid cup, so as to diminish the risk of vitreous prolapse.

Colonel H. SMITH, I.M.S., said he thought secondary operations for cataract should be deferred for ten days. With regard to the capsule holding back the vitreous, the hyaloid was not completely independent of the capsule of the lens, as Prof. Anderson Stewart showed in 1894. The iris tended to be pushed more forward in intracapsular extraction than after the ordinary operation; and in the former, too, there was greater liability to prolapse of iris. If all else was as it should be, loss of vitreous, even to the extent of one-third, did not militate against the eye lasting as well as an ordinary eye. He was inclined to think that in these cases vitreous was renewed, but he could not be sure on the point. A drawn-up pupil was a too frequent sequel of these operations. He also emphasised the need of thorough control of the orbicularis during the operation. For this he preferred the ordinary squint hook to the injection of novocaine. Any procedure or instrument which was inelastic was liable to fail. He congratulated Mr. Neame and Mr. Foster Moore on their adventure into this field.

Lieut.-Colonel H. KIRKPATRICK, I.M.S., spoke of the efficacy of Colonel Smith's control of the orbicularis in doing the operation for cataract. He considered that loss of vitreous must be looked upon as a disaster in the operation, and anything which diminished the loss of vitreous must be regarded as an advantage.

Mr. GREEVES and Mr. FOSTER MOORE replied.

(To be concluded.)

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

A MEETING of this Society was held at 1, Upper Montague-street, London, W.C., on April 20th, Dr. T. EUSTACE HILL, the President, being in the chair. On behalf of the Metropolitan branch Sir WILLIAM HAMER presented to the Society a portrait of Dr. W. J. Howarth, who being a member of that branch was president of the Society last session. Dr. EUSTACE HILL, in accepting the gift for the Society, eulogised the great services which Dr. Howarth had rendered during his year of office.

Dr. A. H. BYGOTT (county M.O., West Suffolk) then read a paper entitled

Death Certification, More Especially as it Affects the Office of Coroner.

He proposed that the work done by the coroner should be divided, the medical part being done through medical officers of health and the legal part by the legal department of counties and county boroughs working with the police. A medical study of each individual death was likely to suggest preventive measures, and public health authorities could no longer afford to acquiesce in the coroner's office being ad hoc. That office dated from the time of the Saxon kings, and much of the law dealing with it belonged to the thirteenth century and was not well suited to the conditions of modern life. In England and Wales there were about 330 coroners with salaries varying from under £20 per annum to over £1000 and amounting to £77,477 in all, not including certain other expenses. In 1920 53,714 deaths (11.5 per cent.) were referred to coroners, in respect of which 31,486

inquests were held (the others being investigated without inquests) and 12,310 post-mortem examinations were made. There were 192 verdicts of murder, 89 of manslaughter, 6 of justifiable homicide, 137 of felo-de-se, 3236 of suicide, 23 of deaths from neglect of others, 88 from want and exposure, 13,741 from misadventure, and 11,748 from natural causes. There were also 1733 open verdicts. The speaker further pointed out that the proportion of reported cases dealt with without inquest and also the proportion in which post-mortem examinations were made varied very greatly with different coroners. In country districts the numbers of post-mortems were usually low. Under the present system the number of open verdicts was high. The number of murder cases from poisoning was small, and judging from some recent cases Dr. Bygott suggested that a better system of inquiry would reveal more of these. Deaths from accidents were high and many were preventable, which he claimed was an unanswerable argument for improving the system and associating it with other health activities.

The Medical Officer of Health as Coroner.

The Select Committee on Registration and Certification (1893) recommended that all medical death certificates, for which a fee of 2s. 6d. should be paid, should be sent to the Registrar by post as confidential documents, that all uncertified deaths should be reported to the coroner, and that in every sanitary area the M.O.H. should be appointed as public certifier to investigate deaths and report to the coroner if the circumstances were not satisfactory. The Departmental Committee on Coroners' Law (1909) reported that "the present law of death certification offers every opportunity for premature burial and every facility for the concealment of crime." In 1913 Dr. W. A. Brend read a paper to the Medico-Legal Society in which he suggested that a private inquiry by a medical coroner should replace the present system and that the office should be definitely a medical one instead of legal. He did not, however, deal with the interest which public health authorities had in the question. Dr. Bygott claimed that experience of the past eight years showed that inquests without juries were quite practicable in this country. The value of the jury had disappeared since medical evidence had taken the place of inspection of wounds and the like by members of the public. The compass which guided the M.O.H. was his vital statistics, especially death returns. He was a man of standing in his profession not engaged in private practice either as a doctor or solicitor, and was capable of organising the work of ascertaining the cause of death. Dr. Bygott therefore suggested that the office of coroner as it exists should be abolished and that inquiries into the cause of death should be dealt with by the M.O.H. of counties and county boroughs, any legal action required being undertaken through the clerk of the council assisted by the police.

Anomalies of the Present System.

The present system was both costly and inefficient. The procedure of inquests was mediæval, and caused waste of time and undue publicity to the affairs of a family in great distress. There was no official regulation of procedure, the laws of evidence were disregarded, and the investigation could only deal with a body, which might be in a different district from that in which the crime (if any) was committed. If the body was not found, no inquest could be held. The existence of franchise coroners was an anomaly, their salaries and expenses being paid by county councils, while they were nominated by private individuals or corporations. While most coroners were either solicitors or medical practitioners some were neither, and there was no statutory qualification except the holding of lands in fee. Except in a limited number of cases there was no statutory duty to report to the coroner, though registrars were instructed to do so whenever they were aware of a death not accompanied by a medical certificate. The coroner's officer on whose

report the coroner acted was not always a member of the police force and was sometimes a very unsuitable person. The coroner had no power to order and pay for a post-mortem examination unless an inquest were held, though this would often make the inquest unnecessary. He had no medical department at his disposal in cases involving highly complicated scientific investigation, though the Home Office might give help in certain cases. A doctor could not obtain scientific help in cases in which he suspected poisoning, and if his fears were groundless a public inquiry might place him in a very unenviable position. The present rule of viewing the body was objectionable. It was of no assistance, and it often necessitated the inquest being opened before the scientific inquiries were complete. Many of the post-mortem examinations ordered by coroners were carried out in very unsuitable premises, by inexperienced men working without proper facilities, and the mortuary attendants were often of an undesirable character. Much better work might be done with proper organisation, capable of rendering important service to legal and curative medicine. This should be one of the first cares of the Ministry of Health. Moreover, friends object to post-mortems and they had a right to expect them to be done under decent conditions. Another anomaly referred to was the fact that in cases involving criminal proceedings the case was tried by both the coroner's and the magistrate's court before committal to the assizes, and that the decisions of the two courts sometimes differed.

Dr. Bygott criticised the Bill now before the House of Commons, entitled "Coroners' Law and Death Certification Amendment." He suggested that the expense of the proposed reforms was greater than the improvements would justify, and that the proposals were inferior to those which he was submitting. Some of them he suggested were objectionable, and there were many existing anomalies with which the Bill failed to deal.

Discussion.

The PRESIDENT remarked that it was now 30 years since the Select Committee had reported on many of the very points which Dr. Bygott had raised. With regard to the proposal that the M.O.H. should be required to inquire into deaths, this could only be done by the appointment of suitable persons on his staff. His time was too fully occupied for him to do the work personally. He spoke of unqualified medical practice, which Dr. Bygott had said would be discouraged if full medical inquiries were made into every death, and remarked that in one district in Durham County over 20 per cent. of deaths were uncertified because of the prevalence of such practice. Some years ago, on instruction from the Local Government Board, the coroner held inquiries into every uncertified death, and this had a very good effect in restricting unqualified practice. The instruction was afterwards withdrawn. That criminal negligence and crime often went undetected was clear from the cases in which the Public Prosecutor obtained convictions when these circumstances were not revealed as the result of the coroner's inquest.

Dr. F. E. FREMANTLE, M.P., observed that Dr. Bygott's proposals raised questions of privilege and office which would necessarily cause strenuous opposition, and that the attitude of the legal profession, extremely powerful as it was, might be hostile. If the matter could be ventilated and threshed out in the Medico-Legal Society this might induce the lawyers to look upon it more favourably. It fell within the province of the Home Secretary and his legal advisers. In regard to the proposals in connexion with the M.O.H., Dr. Fremantle submitted that it would only be possible for him to deal with the matter administratively. The present Bill was not regarded as a solution of the problem, but it broke the ground and prepared the way for further action in the future. Much work on the subject would be required and it would be necessary to show that the present system actually caused harm and

loss to the State. That the office of coroner was anomalous was not important; the important question was that of efficiency. In considering reforms on the medical side the importance of the legal side must not be lost sight of.

Dr. C. PORTER (M.O.H., St. Marylebone) felt that as compared with Dr. Bygott's proposals there was much more chance for the other reform that had been a good deal canvassed—viz., that the M.O.H. should be appointed as registrar of deaths instead of a layman. Such a reform as this might make the further proposals in regard to the office of coroner more practicable later. He did not think that the proposal to divide the work of the coroner between two different officials, medical and legal, would meet with much favour. The removal of established officers was always a difficult task.

Reply.

Dr. BYGOTT said that he had in mind in his proposals that the M.O.H. would not carry out the details of the office personally, but through his staff. He had purposely refrained from discussing the question of the M.O.H. acting as registrar, as not being germane to his subject. It would be much easier to make this change as to registration in the towns than in many rural areas.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on April 12th, Prof. J. HILL ABRAM, the President, being in the chair.

Exhibition of Cases and Specimens.

Dr. J. R. LOGAN read a note on Unusual Mineral Deposit in Soft Tissues of the Hands, and showed X ray photographs. The patient was a female, aged 60, suffering from a mild degree of Raynaud's disease. The hands and feet were always cold, the former often of dusky blue colour; dilated veins were visible on face, ears, and tongue. The mineral deposit was not found in the toes. There were many nodules on the sides and palmar surfaces of fingers and thumbs, in the subcutaneous tissue, not specially near the joints. Analysis showed that there was no trace of uric acid, and that the substance giving the dense shadows was phosphate and carbonate of lime.

MR. ARTHUR EVANS read a note on a case of Fracture-dislocation of the Fourth Cervical Vertebra. The patient, having fallen from a motor-lorry, was admitted into the Southport Infirmary under the care of Dr. Reinhardt Anderson. The injury was followed by a definite paresis of both upper and lower limbs with sensory phenomena indicating a lesion of the fifth cervical segment of the cord. There was definite tenderness over the region of the fourth cervical spine. A radiograph showed a well-marked fracture-dislocation forward of the fourth cervical vertebra upon the fifth below. Expectant treatment was carried out, but the patient's condition became stationary in a short period of time. Laminectomy therefore was performed six weeks from the date of the accident, the spines and laminae of the third, fourth, and fifth cervical vertebra being removed. The cord, at the level of the dislocation, was found to be grooved and indented in its entire circumference by the laminae of the fractured vertebra behind and in front by the "angulation" produced by the body of the vertebra below the dislocation. The patient made a steady and rapid recovery. Twelve months from the date of his injury he was able to resume his ordinary employment as a mechanic in a well-known motor factory, an occupation requiring not only considerable muscular strength, but unusual deftness of hands and arms.

Prof. R. J. M. BUCHANAN introduced a discussion on

Non-obstructive Jaundice.

He considered that distinction should be made between jaundice without gross obstructive lesion

and jaundice from other causes. He held that the condition was always in the last event due to obstruction to the biliary secretion, even in cases where the cause was an inflammatory condition on the liver. Prof. Buchanan reviewed the differential diagnosis and the value of the Cammidge reaction and of the chemical test introduced by Van den Bergh. He discussed the difficulty that arises in the diagnosis between jaundice that was purely hæmolytic in origin and forms in which there was some functional derangement in the hepatic cells.

Dr. E. CRONIN LOWE said that jaundice was a symptom arising from derangement of hepatic function from many causes. Among the most common was infection of intestinal origin, the infection proceeding by way of the portal circulation. Mild jaundice could also be demonstrated in the early stages of many infections which were not portal. He considered that Van den Bergh's test should prove of great assistance in the diagnosis between gross obstruction and catarrhal cellular hepatitis. He had not found absence of post-prandial leucocytosis reliable as an indication of hepatic deficiency. All cases of jaundice without gross obstruction required extensive investigation which included examination of the gastric, intestinal, and urinary secretions, and also of the blood. When jaundice was traceable to portal infection treatment by a vaccine was of considerable value.

Dr. H. PEMBERTON said that apart from a grossly obstructive type of jaundice, which showed acholic stools, bile pigments always in the urine, and an excess of bilirubin (giving the direct Van den Bergh reaction) as well as of bile-salts in the blood, there was another group to which the term "non-obstructive" had been loosely applied. In this group bile-derivatives might be normal or in excess in the fæces, bile-pigments might be absent from the urine, but urobilin was often present, and in the blood there was a form of bilirubin which gave the indirect Van den Bergh reaction, but usually no bile-salts. Among the many types which comprised this latter group a subdivision into a type presenting mainly hæmolytic features and a type presenting mainly primary hepatic inefficiency often seemed possible; in the first type the presence of splenic enlargement, increased fragility of erythrocytes and urobilinuria often contrasted with the condition found in the second type, where lævulose estimation in the blood after a test-meal might show the abnormal curve of liver inefficiency. As a diagnostic test Van den Bergh's reaction did not seem of much value in this respect.

Dr. GORDON GULLAN said that he had seen a typical case of nervous jaundice occurring in a student every time he went up for examination; the jaundice was very deep and lasted for four or five weeks. Dr. Gullan referred to cases of Hanot's cirrhosis in which, as well as the jaundice and the great enlargement of the liver, hæmorrhages were present under the skin and the mucous membranes; in these cases some bile was also found in the stools.

CARDIFF MEDICAL SOCIETY.

A MEETING of this Society was held on April 10th, Dr. E. E. BRIERLEY, Vice-president, being in the chair.

Mr. T. E. HAMMOND read a paper on the

Surgery of the Prostate.

He said that little was known of the cause of senile enlargement of the prostate. The trouble to which an enlarged prostate might give rise could be regarded from three points of view: (a) changes which take place in the tumour itself; (b) secondary effects on the urinary apparatus; (c) the symptoms and complications. As to changes in the tumour itself, about 16 per cent. of tumours removed as simple adenomata showed malignant changes. As to secondary effects, the obstruction to the outflow of urine led to dilata-

tion of the bladder, and later of the ureter and pelvis of the kidney. This gave rise to back-pressure nephritis with retention of urea in the blood, a raising of the blood pressure, and arterial changes. An impairment in the general health and the mental faculties soon followed, while uræmia was usually the cause of death. As to symptoms and complications difficult micturition was often present, but frequency might be equally distressing. The chief complications were acute retention and infection.

Treatment.—Urinary sedatives had a temporary effect on the symptoms, but did not prevent the insidious destruction of the kidney tissue. Extracts of the prostate or of the endocrine glands were useless. X rays and radium had their advocates, but it was difficult to understand why they should have an action on such a deeply situated organ as the prostate, when they had failed in similar conditions found in the more superficial breast. The results claimed were due probably to a failure to recognise the irregular course which many of these cases run, for there might be complete remission of symptoms apart from any treatment.

Three methods of treatment are available: The use of the catheter, forage of the prostate, and removal of the prostate. Catheter life was painful, gave only slight relief, and should be reserved for cases where operation is refused or is contra-indicated. Forage, the term applied to the formation of a channel through the prostate, had been revived lately through the introduction of the Brown-Buerguer cysto-urethroscope and diathermy; in cases of enlargement of the middle lobe alone the functional result was often good, but the method was useless if the lateral lobes were enlarged. Suprapubic prostatectomy gave a perfect functional result. The mortality rate was 8 per cent. for hospital patients and 3 per cent. for private patients. The earlier the operation, the less the suffering and the risk to the patient. Age in itself formed no barrier to operation. Diabetes, heart and lung conditions must be given great weight, since the operative risk is increased and the expectation of life is diminished, but debility was not necessarily a contra-indication. Difficulty and frequency called for treatment. Exaggerated sexual desire was often distressing, and, in cases where elderly men were arrested for accosting women in the parks, an enlarged prostate was often the indirect cause of the trouble. Infection would never clear up until the prostate had been removed.

The open operation, introduced by Sir John Thomson Walker, was, in Mr. Hammond's opinion, the operation of choice, but where the general health was not good he performed the older type of operation. When signs of renal inefficiency were found the prostate should be removed only after preliminary drainage of the bladder. Suprapubic prostatectomy should be reserved for the simple or so-called adenomatous enlargement; it should not be performed where the prostatic symptoms are due to a malignant prostate, a chronic inflammatory prostate, a small fibrous or irritable prostate, or a prostatic bar.

Dr. JAMES BEATTY gave a demonstration of

New Instruments for Obtaining High Microscopical Magnifications.

He showed two eye-pieces of his own invention which were infinitely variable in power within their upper and lower limits. He pointed out that these could be usefully used only if the capabilities of the microscope were thoroughly understood. There was an optimum distance of objective from object for every objective. The best possible image would only be obtained when the objective was in this position, and the maximum cone of light that the objective would stand was entering it. This critical image could only be obtained if certain conditions, outlined by Dr. Beatty, were present. The new appliances shown were meant to be used only on the critical image, and the merit claimed for them was that a microscopist possessing one or other of them and Nos. 2 and 4 eye-

pieces (and an extra No. 2 in the case of one of the new instruments) could obtain any magnification whatever producible by eye-piecing from about $\times 9$ to about $\times 40$. In one of them two eye-pieces were used, one acting as an objective; in the other a concave lens was used to produce the variation in magnification. By working with the critical image and varying the power of the eye-piece as required within the limits that the image would stand much of the work at present done with an oil-immersion 1-12th inch lens could be done with a 1-6th inch.

BATH CLINICAL SOCIETY.

A MEETING was held on April 6th. Mr. W. G. MUMFORD, the President, being in the chair, when a discussion was held on

Indigestion, its Varieties and Treatment.

Dr. C. S. FLEMMING spoke from the point of view of the general practitioner. He dealt with the question of pain, which is so frequently complained of by patients, and is so difficult to explain. He also raised the questions of the efficacy of various diets and of the administration of alkalies.

Dr. F. G. THOMSON, speaking as a physician, defined the term indigestion as a condition involving pain, eructation of gas or sour fluid, and vomiting. He dealt with its treatment both by general means and by drugs. He pointed out the association of dyspeptic symptoms with oral sepsis, pulmonary tuberculosis, and cardiac disease.

Mr. F. FRASER spoke from the standpoint of the surgeon. He remarked on the failure to diagnose cancer of the stomach in the early operable stages, and indicated the signs of this condition which he had found reliable. Of these continuous pain was the most prominent. He then dealt with the unreliability of the differential diagnosis of the various surgical cases showing symptoms of dyspepsia.

The discussion was continued by Dr. C. EDE, Dr. C. A. MARSH, and Dr. D. A. MITCHELL, who dealt with duodenal ileus; Dr. H. C. HEATHCOTE and Dr. R. G. GORDON, who dealt with dyspepsia of psychogenic origin; and Mr. J. H. NIXON, Dr. V. M. COATES, and Mr. C. H. TERRY.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on April 5th, Dr. ALEX. OGSTON, the President, being in the chair. A lantern demonstration on Pelvic Hernia (Prolapsed Uteri) was given by Mr. ALEXANDER DON and Mr. VICTOR DON. The anatomy of the pelvic floor was shown, and the authors pointed out that the real support was formed by the levators, coccygei, &c., and their coverings the true fascia of the muscles. Sections of the pelvis showed the subperitoneal tissues impregnated with fat with no definite ligamentous bands. The physiology affecting the abdomino-pelvic pressure was fully explained, showing that gravity had little to do with prolapse, or the so-called ligaments with retention of organs, the onus being entirely on the pelvic muscles and their fascial coverings. A new operation founded on the methods which have proved successful in dealing with herniæ elsewhere was demonstrated, in which the edges of the levators were brought together and their fascial coverings overlapped; or, if these were found much scarred or thinned, a piece of fascia lata from the thigh was introduced to strengthen the support. Operations which depended on the suturing of connective tissues only were condemned as unreliable. The authors have not had sufficient experience of the results, but the operation was stated to be comparatively simple and safe, and healing was ensured by gentle handling of the tissues.

Reviews and Notices of Books.

THE PHYSIOLOGY OF TWINNING.

By H. H. NEWMAN, Professor of Zoology in the University of Chicago. University Press, Chicago. 1923. Pp. 230. \$1.75.

THIS very interesting book is a sequel to the Biology of Twins by the same author published in 1917. It deals only with "true" twins—that is, pairs of individuals derived from single eggs—and covers the whole animal series instead of being limited to mammals, as was the former book. Such a process of reproduction occurs normally in earth-worms, as was discovered by Kleinenberg nearly 50 years ago, and to an extraordinary degree in some armadillos. In the Texas armadillo (*Dasypus novemcinctus*) the early embryo divides into two symmetrical longitudinal halves, and each of these divides again, so that normally four "identical" young are produced from a single egg. In a South American species (*D. hybridus*) three such twinnings are normal and a fourth may occur, so that as many as 12 embryos may arise from one egg. In man the same process may result in two separate individuals; this is represented by the familiar identical twins of the same sex with one placenta. Or at the other end of the scale one of the individuals may be represented by a teratoma, and presentations of all the intermediate stages are found in Siamese twins, the various double monsters, the rare condition of hemihypertrophy, and probably in transpositions of the viscera, one of the two mirror-imaging individuals being in this last case suppressed. In making his survey of the subject the author is concerned to emphasise two points. He insists that double embryos are always produced by fission from one egg rather than by fusion from two. Fission may take place at any stage of early development—by division of the blastoderm, by double gastrulation, or by partial or complete separation of the halves of a single embryonic axis. And in discussing one case after another he always brings forward his generalisation that the fundamental cause of twinning is a lowered rate of metabolism and growth during which the embryo loses the functional orientation to which recent experimental zoologists attach so much importance. Arey has recently pointed out that monozygotic human twins are much more frequent in tubal than normal pregnancies. It is curious that Prof. Newman says that double monsters are unknown among mollusca; Pelseneer has published many examples of double and multiple embryos.

For its substance the book is perhaps rather over-long. We would indeed suggest that when a new edition is called for it would be better to reduce this and the author's previous work to a single volume, which would then be an extraordinarily useful and suggestive book to workers in many fields.

REGIONAL ANÆSTHESIA.

By GASTON LABAT, M.D., Lecturer on Regional Anæsthesia at the New York University. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 496. 35s.

CERTAIN drawbacks have arisen from the high state of perfection which the art of inducing general anæsthesia has reached in this country, the chief of which is that but little attention has been paid to the possibilities of local anæsthesia. There are few English surgeons or anæsthetists particularly skilled in all the methods of regional anæsthesia. In general its possibilities are unknown. A perusal of this book shows how carefully the technique has been worked out and how it may be employed for almost any operation. It is obviously more easy to employ these methods in patients of the stolid unimaginative kind, for the injection of the anæsthetic itself would be very disturbing to the highly-strung individual;

such a one would scarcely submit to the 12 or 14 needle-pricks which are necessary for a laparotomy in order to block the abdominal nerves in front and the splanchnics behind. But often in old weak people or when there is the toxæmia of acute intestinal obstruction, regional methods have many advantages, and fortunately such patients have dulled sensibility. In other parts of the body local anæsthesia is more easy to induce and correspondingly more useful. The author is very clear in his descriptions of technique, the book is beautifully illustrated, but a statement of the percentage of failures in such methods as paravertebral and splanchnic anæsthesias would have rendered it even more valuable. The latter procedure is apt to fail in the most skilled hands.

For those who wish to practise regional anæsthesia this book is as good a guide as any in the English language.

THE CAPILLARIES.

The Anatomy and Physiology of Capillaries. By AUGUST KROGH, Ph.D., LL.D., Professor of Zoö-Physiology, Copenhagen University. (Silliman Memorial Lecture.) London: Humphrey Milford. Oxford University Press. 1922. Pp. 276. 13s. 6d.

ALTHOUGH the capillaries represent the most important part of the circulation, it is surprising that accurate investigation of their properties has been deferred until the present decade. Although Prof. Krogh, with characteristic modesty, would have us infer that his own researches in this field are merely an extension of the work of various earlier investigators, physiologists recognise him as a real pioneer, because his writings have so beautifully integrated the experimental results of his predecessors as well as adding much of great significance to their achievements. If any object-lesson were needed of the folly of divorcing histology and biochemistry from the purview of biology and physiology, we have it here, for Prof. Krogh has viewed his problem from all these standpoints, and achieved results unattainable from any single one. The book, written in English of which the author may well feel proud, marks an epoch in the physiology of the circulation, and should be read by all clinicians who view their subject from the scientific aspect, as it will certainly be read by physiologists all over the world. Our congratulations are extended, not only to the author, but to the Silliman Trustees, on their choice of lecturer.

FOOD VITAMINS.

Vital Factors of Foods, Vitamins, and Nutrition. By CARLETON ELLIS, S.B., F.C.S., Consulting Chemist, author of "Hydrogenation of Oils," &c.; and ANNE LOUISE MACLEOD, Ph.D., Associate Professor of Chemistry, Vassar College. London: Chapman and Hall, Ltd. 1923. Pp. 391. 25s.

THERE are so many books dealing with vitamins already on the market, that it is a little difficult to understand the motives which prompt authors to add to their number. The present book is quite as good as many of its contemporaries, and provides a satisfactory account of a subject which is in danger of becoming rather dull from over-emphasis and vain repetition. The account given in this volume appears to be complete and well written, though the historical perspective does not seem always to be accurate; the method of treatment adopted is to give abstracts of the work of most of the investigators who have given attention to the subject; where views conflict, the reader is left to choose between them for himself. The book is thus more valuable as a guide to the literature on the subject than as a digested presentation of results. The literature quoted is especially full, and is given not only by footnote references, but also in the form of a classified index of results showing the distribution of vitamins in an incredible variety of foodstuffs.

LECTURES ON DIETETICS.

By MAX EINHORN, M.D., Emeritus Professor of Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the Lenox Hill Hospital, New York. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 244. 10s. 6d.

THIS is a revised and enlarged edition of a series of post-graduate lectures on dietetics. General principles rather than detailed regimes are dealt with, and on this the writer may be heartily congratulated, for it saves his book from the dogmatism which makes many larger volumes illogical and unreadable. Special chapters on duodenal and rectal feeding are of great practical value, and the short account of the Allen treatment of diabetes is well written. We regret that Prof. Einhorn has not devoted a special chapter to peptic ulcer, but doubtless he feels the subject too vast to be compressed into a small volume of this type.

GREEN'S MANUAL OF PATHOLOGY AND MORBID ANATOMY.

Thirteenth edition. Revised and enlarged by W. CECIL BOSANQUET, M.A., M.D., F.R.C.P., Physician (late Pathologist) to Charing Cross Hospital, &c., and G. S. WILSON, M.D., M.R.C.P., D.P.H., Demonstrator in Bacteriology, Charing Cross Hospital Medical School. London: Baillière, Tindall and Cox. 1923. Pp. 624. 21s.

FEW text-books have enjoyed so successful a career as Green's Pathology. For over 50 years it has been in demand among medical students, and its popularity shows no signs of declining. Its vogue is easily explained. Without being unduly bulky, it contains sufficient to meet the needs of the qualifying examinations, and successive editors have modernised it without robbing it of those features which originally distinguished it from other manuals on the same subject. The present edition has been extensively revised and rearranged, and additional matter incorporating the work of the last few years has been inserted where necessary. There are also several new figures, though some of these are hardly as good as they might be. The book is well bound and printed, and is, for a post-war publication, extremely cheap.

THE ANIMAL AND ITS ENVIRONMENT.

A Text-book of the Natural History of Animals. By L. A. BORRADAILE, D.Sc., Lecturer in Zoology in the University of Cambridge. London: Henry Frowde and Hodder and Stoughton. 1923. With 426 text figures and 4 coloured plates. Pp. 399. 18s.

BIOLOGY is just now maintaining a place in the medical curriculum with some difficulty and has long occupied a strangely minor position, though medicine cannot be other than a branch of applied biology. Of the value of a sound discipline in morphology and of the educational work of the larger conceptions of comparative anatomy there can, however, be no question; and if to these formal studies there had been added more of the sort of biology dealt with by Dr. Borradaile, projects to relegate the subject to a subsidiary position in the physiological department would be treated with contempt. The archaeological fascination of unravelling the past has had an undue share of attention; we are told even now that the object of studying embryology is to elucidate descent.

The modern development of interest in the relations of live animals and plants to one another and to their present surroundings has not yet been adequately reflected in the elementary curricula. Dr. Borradaile's work is therefore very welcome. With hardly any reference to evolution—well catered for already—he deals in order with the relation of animals to their physical surroundings and to animals of the same and different species, with the characteristics of marine,

fresh-water, and land animals, with parasites and other similar topics. The subjects are, of course, of vast extent and the treatment is therefore necessarily condensed and nowhere exhaustive; the chapters would, indeed, make excellent frameworks for courses of lectures. Planned primarily for students, the book needs close reading, and the quantity of information contained in it is very considerable. It is also suggestive to a high degree, and we can imagine that the reader will often want to know where he could find more about this or that topic. Unfortunately, there are practically no references; indications of the existence of such books as Murray's "Ocean" in the Home University Library, Poulton's "Colours of Animals," Flatteley and Walton's "Biology of the Sea-shore," L. J. Henderson's "Fitness of the Environment," and so on would be very useful to the student who has no advisers ready to hand. The illustrations are abundant and with their legends supplement the text a good deal; some of them are very old friends, but their varied nature adds to the excitement and interest of the book.

MALAY POISONS AND CHARM CURES.

Second edition. By JOHN D. GIMLETTE, M.R.C.S., L.R.C.P., Residency Surgeon of Kelantan. London: J. and A. Churchill. 1923. Pp. 260. 8s. 6d.

WHEN IN THE LANCET of May 22nd, 1915, we reviewed the first edition of this excellent book we expressed a wish that Mr. Gimlette would continue his researches into Malay poisons, and we congratulate him on the fact that he has done so. In this edition, to which Sir W. H. Willcox has written a foreword, the author goes considerably more fully into the subject. Kelantan, and we daresay other portions of the Malay Peninsula, must be a paradise for the poisoner, so many and so varied are the poisonous animals, insects, and plants. Sir W. H. Willcox mentions in his foreword that 18 animal poisons and 23 vegetable poisons have as yet their active principles undetermined. Mr. Gimlette mentions one method of administering poison which was commonly used, so tradition says, in the Middle Ages in Europe—namely, by dividing a fruit or a melon with a knife, one side of which has been smeared with poison, cyanide being generally used in Trengganu, which borders on Kelantan. Among the vegetable poisons used are the sap or the resin of trees known as Jitong and Rengas. Workers in Rengas wood are liable to painful eruptions on the skin caused by sawing the wood and a similar effect has been noticed and was commented on not long ago in the case of workers in other woods. Mr. Gimlette's chapters on spells and charms are of extreme interest as showing, among other matters, how consistent human nature is from age to age. For instance, on p. 45 is an account of a "bomor"—i.e., a Malay medicine-man—who treated the pain caused by a bite from a non-poisonous snake by blowing on the bitten limb. Mr. Gimlette quotes from a writer to the *Times* of 1919 an account of a herbalist in the East-End of London who cured scalds by blowing on the blisters, and a similar story comes from Belfast and is given in the *Daily Express* of Jan. 23rd, 1923. In this case, however, the child died from sepsis. On p. 96 we have an account of the old old superstition of the waxen image made in the likeness of the person whom it is desired to slay, and pierced with pins. The value of Mr. Gimlette's book is increased by the full bibliographical references at the end of every chapter and by an admirable index.

JOURNALS.

BRITISH JOURNAL OF EXPERIMENTAL PATHOLOGY. Vol. IV., No. 2, April, 1923.—On the Behaviour of Platelets in Vitamin-A Deficiency and on the Technique of Counting Them. W. Cramer, A. H. Drew, and J. C. Mottram. The authors confirm their

observations that there is a constant deep thrombopenia in vitamin-A deficiency, which they now suggest is due to adsorption of platelets by bacteria which enter the body through the intestinal tract. They discuss S. P. Bedson's and S. S. Zilva's criticism of their work and conclude that these authors have used a faulty optical system in their microscopic technique.—A Suggested Substitute for Canada Balsam as a Mounting Medium, H. W. Southgate. Yucatan Elemi is recommended as a substitute for Canada balsam, over which it has distinct advantages, one being the better retention of colours in preparations mounted in it.—Growth and Differentiation in Tissue Cultures, A. H. Drew.—On the Mode of Production of Bacteriophage, Elizabeth H. Lepper. The strength of a given bacteriophage is not increased by allowing it to kill and lyse sensitive bacilli, but there is some evidence that increase in lysis is associated with proliferation of the resistant type of bacillus; the experiments on which these and other conclusions are based are described in detail.—The Detection of *Spironema Pallidum*, J. E. Barnard. An important point in the recognition of *S. pallidum* is the relation of the number of spirals to a given length, and a convenient unit of length is the diameter of the erythrocyte. Since red blood corpuscles are not always abundant in the material to be examined, the author has devised a graticule which, if placed on the diaphragm of the ocular, produces in the microscopic image clear circles which imitate accurately red blood corpuscles.—Investigation of the Aetiology of Typhus Fever, especially undertaken for the Egyptian Government in the Public Health Laboratories, Cairo, J. A. Arkwright and the late A. W. Bacot. The virus of typhus in blood is found in much greater concentration in a platelet emulsion than in other parts of the blood. Lice infected with *R. prowazeki* are infective for guinea-pigs whether an emulsion of the lice themselves or of their excreta is used for the inoculation. The excreta of such lice remains active as a dry powder at room temperature for 11 days. While there is no evidence that rickettsia can be transmitted by the lice in the act of biting, the virus in the faeces can enter the body through abrasions, &c.—The Brain and Immunity Reactions to Jensen's Rat Sarcoma, W. S. Lazarus-Barlow and R. H. Parry. Intracerebral inoculations of non-radiated or heavily-radiated grafts produce a general resistance to inoculation greater than that brought about by subcutaneous inoculation of similar material. The growth of a graft in the brain is restrained and delayed as compared with one in the subcutaneous tissue.—The Relative Concentration Ratios of Some Constituents of the Urine, S. W. F. Underhill. Urea and creatinine are evenly distributed between the plasma and the corpuscles in the blood of the cat, but after injection of these substances into the blood stream there may be a greater proportion in the plasma. A larger proportion of injected inorganic phosphate and uric acid is found in the plasma than in the corpuscles.—Vascular Changes Affecting Bulbar Nerve Centres, D. T. Barry. An investigation into the variations in tone and excitability of bulbar centres brought about by changes in the supply and in the hæmoglobin content of the blood.

THE TROPICAL DISEASES BULLETIN for March contains reviews of recent literature on yaws, tuberculosis, and helminthiasis. Ten papers on yaws are summarised by A. G. Bagshawe, including the recently published clinical study by R. L. Spittel. Tuberculosis in the tropics, an extensive and very important subject, is discussed in a series of 20 reviews by S. L. Cummins, who draws the attention of tuberculosis specialists in this country to this important aspect of the subject, and as he remarks, one is apt to regard the disease solely from their standpoint, not recognising that the manifestations of tuberculosis in the tropics differ considerably from those seen in temperate climates. A total of 165 papers on helminthiasis are summarised for the most part by R. T. Leiper, assisted by H. Harold Scott.

INSULIN AND THE TREATMENT OF DIABETES: SOME CLINICAL RESULTS.

A REPORT TO THE MEDICAL RESEARCH COUNCIL.

WE have published in these columns the announcements from the Medical Research Council¹ explaining the measures which have been taken in this country for studying the production and the properties of insulin, and for promoting its manufacture upon a large scale. The last of these announcements promised the communication to the medical profession at an early date of the results of the treatment as now, and for the past months, in progress at various hospitals, so that the experience gained in the clinical researches should inform and guide the profession.

The present statement is, accordingly, a clinical report upon the uses of insulin, and is the outcome of a conference held at the offices of the Medical Research Council. It gives a general summary of the clinical experience of workers in various clinics in London (University College, the London, St. Bartholomew's, Guy's, St. Thomas's), Sheffield, Edinburgh, and Glasgow, these being the centres at which the Council had organised a local laboratory production of insulin and its clinical study. The workers had the advantage of using insulin prepared, under the directions of the Medical Research Council, in the laboratories of the medical schools attached to each hospital, and have been in close coöperation with workers at the National Institute for Medical Research. Latterly samples of insulin prepared by commercial firms have also been used for these clinical investigations, and the results have been found to be identical with those obtained from the products of the various research laboratories.

EXTENT AND NATURE OF CLINICAL TESTS.

The clinical workers have nowhere attempted the quick treatment of a large number of diabetics. At each hospital they have tended rather to select two or three severe cases of this disease and to study very closely the influence of insulin upon the patients week by week, following out the changes in blood-sugar, in respiratory exchange, and in general metabolism, all in great detail with reference to a dietary controlled by precise measurement. The ultimate results of these investigations may throw light upon the metabolic derangements underlying the phenomena of diabetes, and individual papers relating to this work at the various research centres will doubtless appear in course of time. But other physicians wishing to begin the treatment of patients with the insulin that is now available from commercial sources may find some help in an account that presents the general experiences of those who have hitherto been using the product in this country.

Insulin has been used clinically at eight different hospitals for a period of study of about three months at each. The total number of diabetics treated has been small, less than 50, and it included only seven examples of coma. Except in the cases of coma, the patients have all shown admirable improvement, just as was described by the Canadian workers. The blood-sugar falls rapidly as the temporary result of each injection, and sugar may be prevented from appearing in the urine even on a diet so generous as to be three- or four-fold as great as that which the patient could previously tolerate. There is a steady increase of weight together with a sense of greater warmth and energy. The phenomena usually ascribed to deficient metabolism of fats are especially influenced. Acetone vanishes from the breath and aceto-acetic

acid from the urine; lipæmia disappears; acidosis and dyspnoea are at once controlled. It is, however, necessary to insist, by way of caution, that these immediately satisfactory results have been obtained only with insulin. Some other commercial extracts of the pancreas that may at present be bought in the market, for hypodermic or other forms of administration, were tested and found to be totally inert in respect of any power to produce the least fall of blood-sugar, even in a rabbit.

No substitute has yet been found for the hypodermic method of giving insulin. The injections have to be repeated at least once each day. They can control all the ordinary phenomena of diabetes, but the effect of each injection is only transient. As yet there is no satisfactory evidence—time has hardly allowed of that—to show that diabetes in its most serious forms can be completely cured by insulin. It may be that the great majority of severe cases cannot hope for more than prolongation of life, with greater strength and ampler dietary, but only at the cost of continuous treatment with insulin.

GENERAL PRINCIPLES OF ADMINISTRATION.

The insulin is procured by alcoholic extraction of pancreas from the abattoirs. By a complicated alcoholic fractionation, and other processes of fractional precipitation, the active constituent is obtained in a state of relative purity, and is put up in sterile watery solution with a trace of antiseptic added. Ampoules of solution should be kept in the cold wherever possible. The injection should be made with a fine needle, preferably under the skin of the upper arm. A slight tingling or discomfort may be caused for a few minutes, but no prolonged effects of local irritation or reaction have occurred, and the same place may be used again and again for injections.

The unit dose is not measured by reference to the weight of substance taken into solution, but by determining the volume of final solution required to reduce the blood-sugar of a 2-kilo. rabbit under standard conditions to about 0.04 per cent., at which level convulsions appear. Three units, as at present defined, produce this effect in a rabbit; or the units may be calculated by observations on mice under similar standard conditions. The average single dose for an adult patient is 10 new style units, but the administration should always be guided by thought in units rather than in the so-called doses.

In a healthy subject, starved previously for 15 hours and remaining without food, 30 units will cause a fall of blood-sugar commencing in less than half an hour and progressing for about three hours. The fall may be from the normal level of about 0.12 per cent., or 0.1 per cent. down to 0.06 per cent., near which level definite and serious features of sugar deficiency are likely to appear. A larger dose of insulin is required to produce this critical fall in the healthy human being, where the liver is full of stored glycogen, than is an emaciated diabetic. In the latter a rapid fall in blood-sugar and the development of hypoglycæmic features do occur much more readily.

The similarly produced insulin hypoglycæmia in a rabbit is attended by convulsions, coma, and muscular flaccidity. The rabbit remains apparently moribund, and without treatment may die in an hour or two; but the intravenous injection of glucose solution at this stage will in a couple of minutes restore an unconscious and convulsed animal into an apparently normal creature that will probably begin at once to nibble food again. Subcutaneous injection of glucose solution is equally effective, though 10 or 15 minutes are then needed for recovery. The parallel phenomena of insulin hypoglycæmia in the human patient are described later. They can be checked at once by the administration of glucose, but their occurrence should be avoided altogether by carefully attending to the time when insulin is given in relationship to food.

¹ THE LANCET, Nov. 17th, 1922, Feb. 21st and April 21st, 1923.

Administration in Relation to Food.

Insulin should never be given during periods of abstinence from food. Glucose reaches the blood very soon after a meal, and continues to do so for two or four hours, varying with the nature of the meal, whether carbohydrate or protein. The effect of insulin lasts for a period up to eight hours, but there is little danger of serious features developing after the fifth hour. Therefore each injection should be followed by a meal in about a quarter of an hour, and fresh food should be given every three or four hours subsequently until the insulin effect has passed beyond such activity as might reduce the blood-sugar to a seriously low level. It is obviously safer to give two small doses at fully spaced intervals rather than one large dose daily, and a large dose should never be given in the evening, for serious changes might arise unnoticed during the time of sleep and abstinence from food. One worker found that 1 unit of insulin could provide for the efficient consumption of 2 g. carbohydrate taken as such in the food of a completely diabetic patient. Protein food contains nearly half its weight of potential carbohydrate, so that the same dose of insulin should provide for at least 4 g. of protein. But the carbohydrate from protein enters the blood much more slowly than does that of carbohydrate food taken directly as such. Moreover, diabetic patients vary greatly in the amount of insulin required to cover the food taken, while even the individual patient may vary from time to time in his needs.

It is therefore impossible at present to state the doses of insulin needed in respect of any scale of diet. Each patient must be tried separately with regard to his own individual requirement, and the dosage subsequently watched for possible changes in the amount needed.

DANGER OF HYPOLYCEMIC COLLAPSE.

The results of an excessive dosage of insulin were rarely seen. At two of the centres there was no experience at all of them. Other workers saw them to a moderate degree, particularly in cases where diabetic patients were given insulin during periods of starvation for the purpose of studying its influence on the standard metabolism. The reaction, which usually appeared three or four hours after insulin injection, commenced often with a sense of weakness, sometimes associated with free perspiration. Faintness, dizziness, and mistiness of vision were added to this; and the patient might either feel drowsy, as though going quietly under an anæsthetic, or show intense anxiety from the sense of rapidly advancing and overwhelming weakness. The nervous reflexes were simply depressed but not otherwise changed. The blood-sugar was then usually down to 0.06 or 0.05 per cent. Prompt recovery in 10 or 15 minutes was easily obtained by giving glucose from 10 to 20 g., or about $\frac{1}{2}$ oz. drunk in 3 or 4 oz. of water.

Cases that through lack of proper vigilance might have been allowed to pass into unconsciousness would require subcutaneous or intravenous injections of glucose solution (5 per cent. in normal saline). Milder cases at the onset of collapse can be treated by cane sugar. Glucose is not essential except for intravenous injection. No fatalities from this cause have been observed in Great Britain, and the experience of the first three months would suggest that the danger from it is slight. That happy result is, however, not to be taken as evidence that the danger is negligible, but rather to be ascribed to the close attention that was given daily to those patients and to the repeated measurements of their blood-sugar curves. Unnoticed changes in the sugar variation of a diabetic might easily occasion a serious insulin collapse; or the reaction might follow from some quite trivial chance, such as a patient for some reason or other leaving uneaten the meal that was ordered to follow an injection of insulin.

An Illustrative Case.

An instance that did occur in one hospital ward recently may be quoted in full, since it illustrates emphatically the great need of care in using this new and powerful method of treatment.

CASE A.—A man, aged 62, who had suffered from diabetes mellitus for seven years. He was greatly emaciated. He had ataxia of the legs, the knee-jerks were absent; he presented Romberg's sign and optic neuritis. The Wassermann reaction was negative. There was no evidence of cerebral tumour. During nine days after admission the patient was kept on 53 g. of fat, 84 g. of protein, and 107 g. of carbohydrate, in order that his ketosis might improve. This it rapidly did. He retained on the average about 50 g. of carbohydrate, the urine-sugar averaging between 50 and 60 g. per diem.

April 4th. The fasting blood-sugar was 0.33 per cent. The administration of insulin began, 10 units being given three times a day. Diet consisted of 108 g. carbohydrate, 85 g. protein, and 54 g. of fat. The urine on this date became free of sugar.

April 5th. Thirty units of insulin. At 3 P.M. patient says he has been perspiring since 2 P.M., especially noticeable on the head. He feels rather sick and irritable, but seems quite well.

April 6th. Yesterday's urine was free from sugar and acetone. Usual dose insulin 10 units given at 6 A.M. Patient feels well this morning, but is even more hungry than usual. Feels quite well but rather tired. 1 P.M.: 10 units insulin given. Usual dinner. 2.30 P.M.: The patient got up to shave and wash. He returned to bed about 3 P.M., and felt a glow going all over him and he began to perspire, felt slightly sick and very irritable. At 3.30 P.M. he had a short sleep—he said he had a feeling of apprehension. 3.45 P.M.: The patient awoke in a violent rage, swearing and shouting at another patient in the room for no apparent reason. He was perspiring profusely. Eyes staring. Speech very thick. No twitching. Pulse feeble but not rapid. Whisky 1 oz. in 180 c.cm. hot water given. Patient drank this easily and said he felt better, though he began to feel shivery. Face looked very congested and veins on temples were very prominent. Pulse improved after the stimulant, but patient gradually became more helpless and said he felt "drunk." Saliva dribbling. 4.10 P.M.: The patient cannot hold his head straight (fall to right side), great difficulty in swallowing, the tea coming down his nose. He ate half an egg and a little tea (usual dose of insulin not given). At 4.15 P.M. he was much paler, skin still very moist and cold; cannot speak at all. Unable to swallow. 5.15 P.M.: Patient quite unconscious; incontinence of urine. Blood taken for sugar=0.09 per cent. Moaning continually, with occasional very loud groans (almost a roar). Cannot swallow glucose prepared. 6 P.M.: Intravenous injection of glucose, 45 g. in 450 c.cm. normal saline solution. 6.5 P.M.: Groaning stopped, and patient opened his eyes and became very restless. 6.10 P.M.: Consciousness regained; dribbling of saliva stopped. Patient began to speak, saying that his throat was sore and he felt very cold. Glucose, 25 g. in 240 c.cm. water, and lime-juice given by mouth and swallowed easily. 7 P.M.: Patient sitting up in bed, feeling well and hungry and much warmer. He remembers nothing from the time when his tea was brought in at 4 P.M. until 6.30 P.M. He remembers the onset of the attack very distinctly, and says he knows he lost all control and was shouting and swearing when the attack came on. He says the irritability seemed to "come over him in waves," leaving him with a feeling of nausea. 7.15 P.M.: Patient ate supper—egg, cauliflower 100 g. oatcake 30 g., butter 15 g., two cups of coffee, cream 60 c.cm.

April 7th. Patient feeling very much better. On previous day the urine contained 6 g. sugar, although 154 g. carbohydrate, 74 g. protein, and 108 g. fat had been taken in his diet.

Since April 8th only small traces of sugar have appeared in the urine, in spite of the diet consisting of between 140 to 150 g. carbohydrate, 78 g. protein, and 150 fat. There has been a steady improvement, blood-sugar remaining at about 0.150 per cent., but on a number of occasions there have been signs of hypoglycæmia. These usually occurred in the late afternoon. The amounts of insulin vary between 20 and 30 units per day. It is apparent in this case that symptoms due to hypoglycæmia occurred very readily as during the severe attack the blood-sugar had only decreased to 0.09 per cent.

If insulin be given to patients in such amounts as to keep the urine free from sugar the dosage must be frequently checked by blood-sugar determinations. And for all cases under insulin treatment glucose or cane-sugar must be kept ready at hand, so that a small quantity may be given to the patient as soon

as any premonitory symptoms of hypoglycæmia are noticed.

SELECTION OF PATIENTS.

The instructions drawn up by the Committee advising the Ministry of Health upon the use of insulin require that there shall be no luxury use of this product until supplies are abundant. Mild cases of glycosuria or diabetes are therefore excluded, and with these would automatically be classed those cases (renal glycosuria) where sugar is present in the urine for three or four hours after food, owing to excessive permeability of the kidney, though the blood-sugar is not raised above the normal percentage, and the patient remains otherwise in good health.

It is obvious that whenever insulin becomes available for the treatment of mild cases, great care will need to be exercised in the exclusion of such cases of renal glycosuria from insulin administration since they would be likely to show early and dangerous hypoglycæmic collapse. All ordinary diabetics should, in the first place, be put on a restricted diet with some periods of starvation—as, for example, by the Allen or Graham procedure—and their treatment continued simply in this way on the lines established by workers in the years immediately preceding the introduction of insulin.

If the diabetes is not of long standing and the patient not greatly wasted, this treatment would probably suffice, or might need only slight assistance later with insulin. But if the disease is of long duration, with proved excess of blood-sugar, and the patient fails after starvation to tolerate any diet of less value than about 1000 calories in the 24 hours, so that strength and weight continue to fail seriously, then insulin should be given systematically.

The cases hitherto treated at the research centres have all been of this severe type. The reasons for this choice were two: In the first place, the supply of insulin made at each hospital laboratory was small, and it was naturally reserved for those patients who were so seriously ill that without the aid of the new treatment they could not have been expected to live many months longer. Secondly, these serious cases, in whom failure of ordinary treatment by dieting over a long period had proved the almost complete decay of the patient's natural mechanism for the proper metabolism of carbohydrates and fats, gave an opportunity for demonstrating clearly and at once in each individual case the powerful effect of insulin against the background of complete diabetes. Mild or acute cases of diabetes often recover so well during the first course of dietetic treatment without any aid from insulin that it would have been necessary to study a considerable number of them in order to demonstrate convincingly the effect of insulin.

THE MANAGEMENT OF TREATMENT.

The method of controlling the diet varied in the different centres, and it is needless to discuss the details of this, because every physician has developed in the course of his experience in the treatment of diabetics his own individual rules for the construction of a dietary; and there was only one instance, to which reference is made later (Case E), suggesting that a special arrangement of the proportions of foodstuffs may be combined with the action of insulin in such a way as to lead to a sustained improvement in the patient's own tolerance of carbohydrate. The general experience was that insulin acted simply as a temporary instrument to enable a diabetic to eat a certain amount of more food than he could previously tolerate without the appearance of sugar or acetone bodies in the urine and without a rise in his blood-sugar. Each dose of insulin, therefore, enabled him to get more energy out of the food and to increase the reserve stored up in his tissues as evidenced by increase of weight. Only a progressive increase of weight over several weeks was accepted as proof of tissue increase, for there was reason to believe that part of the increase of weight was due simply to increased retention of water in the body.

Dosage in Severe Cases.

The following cases are quoted, briefly, to illustrate the doses of insulin needed in severe cases:—

CASE B.—Woman, 56 years old, with steadily progressive and very severe diabetes. During the last 18 months she had repeatedly undergone dietetic treatment in hospital, at first with immediate success, but ultimately tolerance could not be established on any diet sufficient to maintain life.

After five days' continued starvation, the urine became sugar-free. The subsequent tolerance was of a diet of only 190 calories in 24 hours.

By the administration of 60 units of insulin each day she was enabled to tolerate 1350 calories daily, with 80 g. carbohydrate, and her weight was raised in ten weeks from 5 st. 10 lb. to 7 st. During the day the urine was sugar-free and contained no acetone bodies on this diet; but each morning the blood-sugar was over 0.4 per cent., and the urine contained sugar and a trace of ketone from the failure of her own unaided metabolic processes during the night.

CASE C.—Man, aged 18, with severe diabetes for three years. On a diet of 600 calories, containing 20 g. carbohydrate, he excreted 30 g. of sugar daily. With insulin, about 12 units daily, he could tolerate a diet of 1400 calories daily, containing 48 g. carbohydrate, the urine being sugar-free and the blood-sugar below 0.2 per cent. His weight and strength have steadily increased.

CASE D.—A very severe case, who had been kept just alive for the two months preceding insulin treatment on a diet of 600 to 800 calories daily. On this he was excreting large amounts of sugar and ketone bodies, and seemed unlikely to survive many weeks. Insulin twice daily enabled such increase of diet to be made that there was a gain of weight of 15 lb. in the first fortnight. He was eventually raised to 2500 calories with 70 g. carbohydrate, upon which, with slight glycosuria, he was able to return to work while continuing insulin injections twice daily.

Aim at Real Amelioration.

The doses in severe cases may be from 10 to 20 or even 30 units twice a day, or a smaller amount divided between three doses. Patients with so grave a form of the disease plainly ought to be treated at first in special institutions, where the diet can be closely controlled and the blood-sugar frequently determined. If, after treatment has commenced, only one measurement of the blood-sugar is made occasionally, it should be from a sample taken at the same time daily and three hours after the injection of insulin and the consumption of a meal directly related to that injection. With such precautions it may be possible to give enough insulin to keep the urine entirely sugar-free, and that condition would seem to be the ideal aim when hopes of ultimate cure or real amelioration are entertained. The essential principle in the treatment of diabetics by diet control alone has been generally recognised to be the avoidance of hyperglycæmia and glycosuria, so that the intrinsic powers of carbohydrate metabolism may be slowly regained in the long period of comparative rest from overstrain. Insulin ought to aid this rest period. But if insulin is given in such amounts as to prevent the appearance of sugar in the urine, there are no means of estimating the full effect of the dose except by watching the blood-sugar. If the latter cannot be done sufficiently often it is probably safer to avoid the danger of hypoglycæmic collapse from too much insulin by reducing the dose to such a level as will just allow the patients a slight glycosuria as a safety gauge. In such conditions the patient will put on weight and recover strength, though on a road that may not be the quickest way to cure.

Real improvement was reported in one case, and here the physician believed that the good result had been attained by the exclusion of all carbohydrate as such from the increased diet under insulin. This method was not tried by the other workers, who had all allowed some carbohydrate food to their patients.

CASE E.—A man with severe diabetes, which had not yielded to rigid dietetic treatment some weeks previously in hospital. On 1360 calories, with 16 g. carbohydrate, he passed from 25 to 33 g. of sugar daily. The blood-sugar at 9 A.M. was 0.24 per cent. He was given insulin, 12 units, each day at 9 A.M. with a meal, the first meal being at 6 A.M. The 9 A.M. blood-sugar gradually fell to 0.15 per cent. It was then found that three hours after 12 units of insulin

the blood-sugar had fallen to 0.055 per cent. The daily dose of insulin was consequently reduced to a lower level at 8 units daily. There was no glycosuria for three weeks and only a small amount of ketone bodies persisted. Subsequently the insulin was reduced to 4 units daily, upon which a diet of 2000 calories, consisting chiefly of protein and fat with carbohydrate as vegetables, is tolerated without glycosuria and with a blood-sugar of 0.11 to 0.13 per cent.

It is obvious that if this dietetic method is proved to be generally applicable there will be a great economy in the use of insulin as well as a better hope of real cure. It is a most expensive method of feeding a patient when carbohydrate is given under the protection of insulin, the latter costing at present nearly 3s. for the control of 30 g. or one ounce of carbohydrate food when eaten by a patient with complete diabetes.

THE TREATMENT OF COMA.

Only seven cases have been treated at the various centres, and they appear to fall into two clinical groups.

Coma following Operation.

First come three cases of coma in diabetes, developing as the result of surgical operations in not very severe diabetics. In all these the blood-sugar during the coma was very high, from 0.7 to 0.8 per cent.; air-hunger and dyspnoea were not conspicuous clinical features, though unfortunately this was not checked by measurements of the alveolar carbonic dioxide or of the alkaline reserve of the blood; there was but little acetone in the breath and not much aceto-acetic acid in the urine. The cases were therefore of coma with great hyperglycæmia, but not with severe ketosis. No improvement was obtained with insulin, though only in one case was the substance given in sufficient amount to reduce the blood-sugar, and it is therefore only in the latter that failure need be admitted. The other two instances should be discarded: in one of them insulin was injected too late when the circulation had practically failed, and in the other the blood-sugar of 0.78 per cent. was virtually unaffected by 30 units of insulin.

CASE F.—A woman of 70, with gall-stones but no obvious liver disease, with arterio-sclerosis and slight diabetes. She passed into coma directly after an operation in which the gall-stones were removed. After five hours of coma the blood-sugar was 0.79 per cent. Dyspnoea moderate, with faint odour of acetone in the breath and only a slight ferric chloride reaction in the urine. No extensor response or other neurological physical signs. Insulin was given subcutaneously in repeated doses of 30 or more units. Five hours later, after a total of 105 units had been given, the blood-sugar was 0.4 per cent. Saline solution had also been given freely. There was absolutely no clinical improvement, and the patient died ten hours later. Post-mortem examination was refused. Clinically the condition appeared to be that of simple coma, though other possibilities cannot be rigidly excluded.

Ordinary Diabetic Coma.

The second group of cases, four in number, was that of ordinary diabetic coma not related to surgical operation, and showing a much lower blood-sugar, 0.3 to 0.4 per cent., but greater air-hunger, with depression of the alveolar CO_2 and with an abundance of ketone bodies in the urine. Further observations are needed before the contrast suggested between the two groups, of surgical coma in diabetes and of ordinary diabetic coma respectively, can be established. But it is obvious that the patients in the second group showed ketosis rather than hyperglycæmia, and in this group three out of four were improved in a very striking way by insulin.

CASE G.—A man was admitted to hospital on the verge of diabetic coma, being just conscious, and with extreme air-hunger as shown by the big respiratory movements of his abdomen and chest. The blood-sugar was 0.33 per cent., a figure often seen in ordinary diabetics while in fair health; but the alveolar CO_2 was 1.1 per cent., a reading so low that in the experience of the physician in charge of the case always meant death within about 12 hours, for he had never seen recovery in any patient with alveolar CO_2 lower than 1.8 per cent. Insulin, 18 units, was given; and abundance of water (15 oz. hourly), together with sodium bicarbonate 2 drachms by the mouth every two hours for three doses. In two hours the patient began to feel better, and his air-

hunger was lessening at the third hour. At six hours the blood-sugar was 0.11 per cent. and the alveolar CO_2 had risen to 2.7 per cent. The patient recovered and now has a morning blood-sugar of 0.15 per cent. on 12 units daily of insulin, and a diet of 53 g. protein, 105 g. fat, and 16 g. carbohydrate in vegetables. There has been no glycosuria for three weeks.

CASE H.—A boy admitted in diabetic coma, with air-hunger and low bicarbonate reserve in the blood. Insulin given, but no sugar. Death.

CASE I.—A young woman of 25, in coma, with air-hunger, acidosis, and blood-sugar of 0.4 per cent. She was given insulin subcutaneously, 10 units, every three hours; at the same time fluid was given freely and glucose solution both intravenously and subcutaneously. The blood-sugar was thereby raised to the very high figure of 1 per cent. The patient recovered.

The last case (Case I) raises a paradox for discussion. Sugar is sometimes given together with insulin in cases of diabetic coma, with the intention of preventing the comatose state from being further aggravated by hypoglycæmic collapse. Now it appears from the cases quoted that coma may arise when the blood-sugar is not unusually high, and also that the patient may emerge from coma though the blood-sugar has been raised by added glucose to 1 per cent. On the other hand, a case (Case F) of post-surgical coma with high blood-sugar was not improved, though the blood-sugar was reduced to 0.4 per cent. by insulin. The percentage of blood-sugar, therefore, appears to bear no direct relation to the state of diabetic coma.

THE SIGNIFICANCE OF COMA.

It is, however, impossible to neglect a comparison between the states of diabetic coma and hypoglycæmic collapse, the latter being an entirely novel conception that has come into pathological thought as the result of experience with insulin. The hypoglycæmic collapse is caused by the artificial lowering of the blood-sugar to half its normal level for health, and it is at once relieved by giving sugar. The brain is therefore as sensitive to the withdrawal of sugar as to sudden diminution in its oxygen supply. It may be that one aspect of the picture of diabetic coma is due to the final inability of the brain cells to consume sugar, even though this food be presented to them in abundance in the blood. Insulin might restore their metabolic power, and their functional recovery might conceivably be aided by artificially increasing for a short time the amount of blood-sugar upon which they can commence to feed.

At any rate, whatever the theory, experience has suggested that, in the treatment of diabetic coma with insulin, glucose should be given simultaneously, either by the mouth or by the stomach-tube or even intravenously. The insulin can generally be administered by hypodermic injection. In cases of extreme circulatory collapse, it can be used intravenously without danger. In all cases fluid should at the same time be given, but not much in excess of half a pint every hour, so that the patient on recovery from the coma shall not fall into danger of death from pulmonary oedema.

The scanty experiences quoted suggest that post-surgical coma in diabetics is difficult to treat. Obviously, the best way is to avoid its occurrence altogether by careful preparation of the patient before the operation, dietetic control and insulin being used together to free the urine of ketones and sugar. There is no evidence available upon the course of such prophylactic treatment, or upon how the action of insulin may be influenced by the proceedings connected with surgical operations.

Other complications of diabetes, such as sepsis, tuberculosis, or peripheral neuritis, can presumably be influenced by insulin as favourably as they are by ordinary dietetic control, when the latter succeeds in abolishing glycosuria. But on this aspect of the general malady no evidence has been collected, for the first investigations in British hospitals were restricted to simple, though serious, instances of diabetes.

THE LANCET.

LONDON: SATURDAY, MAY 5, 1923.

THE NEW CURRICULUM.¹

THE medical curriculum, as all our readers know, has been thoroughly revised; as from Jan. 1st, 1923, the students' educational course has been strengthened, simplified, and coördinated. The revision extends from the pre-registration stage of those who intend to join our numbers, through the hospital career, until satisfaction of examiners leads to registration as a practitioner. Sir GEORGE NEWMAN, in a Memorandum addressed to the Minister of Health, provides an explanation which is also a justification of an interesting programme of reform, and the document should be in the hands of all who are interested in education, lay-men as well as medical men and students, so that they may obtain a clear perception of the present training of the doctor; of the defaults which are remedied and of the better opportunities which are provided by the reforms here set out. The Memorandum follows the form of a previous document entitled, "Notes on Medical Education in England," which was published by the Board of Education five years ago. Since that date not only has the whole of the medical curriculum been changed, but new legislation has been introduced to deal with many grave evils in dental practice, new rules have been laid down to ensure practical training in sanitary science, and university clinics have been founded supported by large grants from public money. The Chief Medical Officer of the Ministry of Health deals with all the substantial modifications in medical education which are thus indicated, and shows the objective also of the university clinics, as bringing into the clinical sphere the whole scientific equipment of the medical school, as advancing learning by research, and as doing both these things in intimate coöperation with the work of the ward, the special department, and the laboratory. The Memorandum is deliberately discursive, but reforms cannot be justified until their necessity has been explained, and rules cannot be comprehended unless the situations which they have been devised to meet are made plain. An appendix gives the regulations for the new curriculum which have been laid down by the General Medical Council, enabling the reader to follow the thread of the chapters (though they are quite clearly written); but it is useful to be able at any moment to consult the actual edicts of the Council, which form a syllabus of all stages of professional study, while they also give the necessary information concerning pre-registration examinations.

What we see first in the new curriculum is that the course is planned to be continuous, and this is important as recent developments in medical education have tended to create water-tight departments. Medical excursions into chemistry, physics, and biology have been frequent and free, and along different lines a high degree of exact knowledge has been obtained. But as that knowledge became more elaborate and detailed so did the particular workers along a given line tend to concentrate upon their speciality, until the spirit of coöperation became jeopardised. The

student, who could not be, and never was, expected to follow such studies in their elaboration, was not supplied with the right sort of connecting links between them, so that no general idea of a massed attack upon disease arose in his mind, enabling him to recognise certain work as preventive in its object and certain as therapeutic, one procedure as assisting in diagnosis and another in treatment. He received his instruction in isolated samples from teachers who pursued their bent in isolation. It was to meet this situation that the experiment of university clinics was instituted some three years ago, providing, in the words of Sir CLIFFORD ALLBUTT, "a professoriate; whole-time, or nearly whole-time professors, with technical laboratory, biochemical and pathological, who, with their assistant staff, shall be engaged continually in irrigating our profession from the springs of the pure sciences." The institution of the units illustrates the development of medical education. When the whole of medical education was in the hands of the practising leaders of the profession, the progress made was grand, but with that progress the need of teachers with special equipment arose. The strain upon the physicians and surgeons of the hospitals became too great, for, in addition to educational responsibilities, entailing close knowledge in directions where they themselves were but recent students, they had their duties to patients without the walls of the hospital. The appointment of whole-time or part-time professors, selected for their clinical and teaching power and approved capacity for research, was therefore determined upon, and the innovation embodies the traditional features of the British system of clinical training, while correcting defects that had arisen in that system through its own virtues in promoting our science. The experience of three years has proved the value of the units in correlating medicine and surgery, and in introducing the methods and spirit of research into medical education. The history is too brief to afford material for any dogmatic estimate of results, but that those results will be good may be expected hopefully.

A chapter in the Memorandum deals with the recommendations of the General Medical Council in respect of an improved scheme for the teaching of obstetrics and gynaecology. It is admitted that the arrangements for teaching these subjects to students have not hitherto been comparable with those concerned in the other clinical portions of the curriculum, but no emphasis need be laid upon the fact that effective teaching in this direction is one of the foremost of the student's needs. More than 50 per cent. of the confinements in the country now come under the hands of registered midwives, but that does not alter the need in the slightest, rather it is intensified thereby; for the cases which remain for medical practitioners include those complicated or serious ones where the midwife is compelled by Act of Parliament to summon medical aid. The General Medical Council has now recommended that in addition to courses of systematic instruction in the principles and practice of obstetrics and gynaecology, accompanied by attendances on in-patients and out-patients, every student shall be trained in the observation of ante-natal conditions and the principles of infant hygiene. This is a recognition of the obvious facts that preventive medicine should play a large part in obstetrics, and that in every case of labour there are two patients concerned. Why more stress has not been laid in the past upon such truisms we are left to wonder. But before obstetrics can be taught at the bedside as fully as medicine and surgery are now taught it will be necessary to discover a larger supply of maternity beds. Should we plead

¹ Recent Advances in Medical Education in England. A Memorandum addressed to the Minister of Health by Sir George Newman, Chief Medical Officer of the Ministry and of the Board of Education. H.M. Stationery Office and all Booksellers. 1s. 3d.

that in gynæcology the training of the medical student is adequate, it may fairly be retorted that the subject is not an extensive one. It is in regard to obstetrics that the insufficiency of both the clinical and systematic teaching is crying, and the main reason is that an insufficient number of beds is devoted to the subject in most of our teaching hospitals. Bedside instruction on labour cases ought, moreover, to be the duty of experienced members of the staff of a hospital, a condition which can only be satisfied when the teachers are resident. We have endorsed recently in these columns the widespread view that nothing can be done in the extern department sufficient to teach the student properly, unless it can be combined with training under skilled supervision in lying-in wards. The recommendations of the General Medical Council on the teaching of obstetrics and gynæcology are sound enough, but real effect cannot be given to them until more beds are provided. The point is fully brought out by Sir GEORGE NEWMAN in the Memorandum, which we regard as a highly valuable piece of work. It is a guide to and an explanation of the medical curriculum with a wise and wide commentary upon the regulations; it should be in the hands of all teachers, and students would benefit much by learning from its pages their charted course.

DEATHS UNDER ANÆSTHETICS.

At a recent discussion on Coroners' Inquests at the Royal Society of Medicine, reported last week at length in our columns, Dr. J. H. CHALDECOTT raised a question of interest to many members of the medical profession. Under the Act of 1887 a coroner must hold an inquest "where the dead body of a person is lying within his jurisdiction and there is reasonable cause to suspect that such person has died either a violent or an unnatural death or has died a sudden death of which the cause is unknown." The law thus leaving them an ample latitude in deciding what is reasonable; coroners, it is stated, have evolved the rule of practice that, where a death occurs under an anæsthetic, an inquest is necessary, although where death occurs from a purely surgical operation, an inquest need not be held. Possibly the distinction has been stated in too general terms, since each case must depend on its own peculiar set of facts, and since serious surgical operations are usually associated with anæsthetics. It is, moreover, scarcely profitable to inquire whether death under the surgeon's knife is less "violent or unnatural" than death under an anæsthetic. If, however, we eliminate all mere generalisations and all mere debating points, we find that anæsthetists are undoubtedly disquieted by a feeling that they are summoned to attend at inquests when other practitioners are not. We need not add that neither an anæsthetist nor, indeed, any medical practitioner ought to be harassed in the execution of his delicate duties by visions of sensational headlines in some catch-penny journal or by anticipations of hostile and perhaps ill-inspired cross-examination. The almost immemorial institution of the coroner's inquest does undoubtedly represent a public safeguard which, however witnesses may be misrepresented and misrepresented, in the vast majority of cases reassures the relatives of the deceased and builds up public confidence. No tribunal of scientific experts sitting behind closed doors would carry the same weight with the multitude as the open court of the coroner, where gossip and suspicion are vindicated or refuted and human actions and motives are challenged and defended in an atmosphere which would be wholly uncongenial to pure scientific inquiry. The abolition

of the coronership would involve a change in the law for which we are convinced the country is entirely unprepared. Dr. A. H. BYGOTT failed to carry the Society of Medical Officers of Health with him in his interesting suggestion to substitute for the coroner the county or borough sanitary authority. Without, however, contemplating any revolutionary alteration in a time-honoured institution which has claimed to trace its origin back as far as King ALFRED, we can still discuss how best this ancient office can fulfil its purpose in the days of King GEORGE. The use of ether and chloroform would have justified a most searching inquiry in the days of the Heptarchy; we are still learning about anæsthetics to-day, but their properties are no longer entirely unfamiliar.

The endeavour to avoid the holding of inquests when a death occurs under an anæsthetic in circumstances which demonstrably negative the idea of either negligence or crime, is not a new one. As was mentioned during the discussion on Dr. CHALDECOTT's paper, the subject was reported upon several years before the war. In 1908 the Home Secretary appointed a Committee to inquire into the law of coroners and coroners' inquests. The Committee was presided over by Sir MACKENZIE CHALMERS, and included Sir MALCOLM MORRIS and Dr. (now Sir WILLIAM) WILLCOX. In the course of its activities it specially studied the question of deaths resulting from the administration of anæsthetics, and after examining eminent anæsthetists, surgeons, and physicians (the witnesses including Sir VICTOR HORSLEY and Sir LAUDER BRUNTON), it issued in 1910 a separate report on this aspect of the law relating to coroners. In part the Committee's recommendations dealt with the scandal of the then entirely unchecked administration of drugs. In so far as they led to our present legislation as to dangerous drugs, they bore fruit. Otherwise they were abortive, though it is worth while to recall what the other recommendations were. The Chalmers Committee recommended that every death under an anæsthetic should be reported to the coroner, who, after inquiry, should determine whether the holding of an inquiry was desirable or not. In the case of every death under an anæsthetic the medical certificate should state the fact, whether the anæsthetic was the actual cause of death or not. In the case of every death under an anæsthetic in a hospital or other similar public institution, there should be a scientific investigation into the cause of death conducted by the authorities of the institution. Finally, a small standing scientific committee on anæsthetics should be instituted under the authority of the Home Office, to collect and digest information, report on advances made by the discovery of new anæsthetics or by improvements in administration, to direct research, and to make the resultant information available in convenient form and at small cost to the medical profession. It would be a sensible step to reconstitute the Chalmers Committee and to set it the task of developing its former proposals in the light of more recent knowledge and experience. We think that the suggested inquiry in the case of deaths under anæsthetics might be strengthened and made more independent. What seems to be wanted is that, with the consent of all the interests concerned, a panel of leading pathologists should be appointed from which personnel could be drawn to make prompt and full examination of all such cases of death. We should thus obtain not only in general a valuable collection of scientific data, but also in each particular case a certificated and thoroughly authoritative report which would be available for the use of the coroner.

Such a report would in no way be a substitute for a coroner's inquest, but it would often enable the coroner to form an opinion that no element of crime or of criminal negligence was present and that no further investigation was required. Possibly for greater publicity coroners might evolve a procedure in appropriate cases for recording a merely formal verdict on the lines of the scientific report if satisfied thereby. We do not forget that, as Dr. Z. MENNELL pointed out during the discussion, the machinery for a domestic inquiry at the hospital already is in some cases in operation. This machinery should, we consider, be standardised; the investigation should be entrusted to what we have called a panel of pathologists whose names command universal confidence, and it might be arranged that no member of the panel should investigate a case of death occurring at his own hospital. Some useful procedure could, we are convinced, be devised on these lines by men of good will. Fortunately the subject has from the beginning been discussed without the least ill-will or bitterness. There is no room for foolish suggestions that on the one hand anaesthetists have anything to conceal, or that on the other hand coroners multiply inquests for the sake of fees.

The fundamental facts to be faced are two. The first is that the coroner's inquest as an institution is indispensable; the second is that, though it may not suit him to admit it, the coroner's discretion is well-nigh absolute. If he decides not to hold an inquest, powers do exist by which the High Court can order one to be held, but those powers have hardly ever been employed. Conversely, if he decides to hold an inquest, nobody (except in almost unheard-of cases) has power to prevent him. The coroner is master of the situation, and his authority has, if anything, increased latterly since during the war he was in some degree made independent of his jury. In recognition of these two facts we appeal to the coroners as a body—for they are organised as such—to state their views, to tell us how far they accept the conclusions of the Chalmers Committee, how far some such independent and authoritative report as we have spoken of above would be useful to them, how far they would be willing in appropriate cases to rely upon it. The coroner enjoys the full confidence of the country. We do not think he will forfeit it if in cases where no suspicion of crime arises and where the highest professional opinion can find no scintilla of negligence, he accepts the certificate of such a tribunal as we have indicated and dispenses with further inquiry.

THE STORY OF INSULIN.

THE story of insulin is in three chapters. In the year 1869 PAUL LANGERHANS, a pupil of VIRCHOW, described in his thesis for the Berlin M.D. certain cell-groups irregularly scattered in the pancreas, which have since been known as his islands. On the ground of their structure he suggested the probability of a secretory activity. Becoming phthisical, he did not hold for long the chair of pathological anatomy at Freiburg, was unable to follow up his work, and died before the age of 40 in Madeira. In 1893 EDOUARD LAGUESSE, professor of histology at Lille, first gave expression to the opinion that, whereas the digestive secretion of the pancreatic acini is delivered through the ducts, the islands of Langerhans are entrusted with some endocrine function important for carbohydrate metabolism; and he devoted all his working life to the elaboration of this opinion. Twenty-five years from anatomy to physiology, and it has taken

another thirty years for therapeutics to exploit the physiological suggestion. The tertiary stage of the story was reached last month, when a hospital patient, admitted on the verge of diabetic coma with extreme air-hunger, a blood-sugar reading of 0.33 per cent. and an alveolar CO_2 reading of 1.1 per cent., was restored to comfort within three hours by the administration of 18 units of insulin extracted from bovine islands of Langerhans. For three weeks after this event the patient has continued to enjoy a diet of 33 g. of protein, 105 g. of fat, and 16 g. of carbohydrate, without glycosuria, on a daily intake of 12 units of insulin. Although there are many points regarding the clinical uses of insulin as yet unexplained, as is made clear in the report to the Medical Research Council which we print on p. 905, the fact is undeniable that an internal secretion has been isolated from the pancreas for practical use which has, for better or for worse, a potent effect on the sugar-content of the blood. If the quantity of the available preparation permitted—which it does not—insulin might be freely used by any diabetic subject, in the picturesque American phrase, for a carbohydrate jag. Even under the carefully controlled conditions of clinical research insulin has resulted in reducing the blood-sugar to a level incompatible with health and within an ace of fatal disaster. Its power for harm is good evidence of its specific efficiency. In one hospital ward a man of 62 who received 10 units of insulin at 1 P.M., followed by his usual dinner at 2.30 P.M., awoke from a snooze at 3.30 P.M. in a feeling of apprehension with staring eyes, thick speech, rapid and feeble pulse, to become unconscious and incontinent at 5 P.M., with a blood-sugar level of 0.09 per cent. Fortunately an intravenous injection of glucose in normal saline solution, followed by glucose and lime-juice by the mouth, restored his working level of glucose in the blood. Evidently insulin should never be given during periods of abstinence from food, as even the accidental omission of a meal expected to follow a dose may lead to harm. Nor is it glucose alone on which the remedy is able to act, for it appears that the accumulation of ketones and other disorderly metabolic products in the blood has been similarly reduced. One of the most important and puzzling facts so far disclosed is the difference in reaction to insulin of the true diabetic coma and the post-operative coma which may arise in diabetics. Clinical investigation shows some primary difference between these and has opened up a field for further investigation. The importance has been demonstrated of getting a diabetic into the best possible condition before attempting operation. No doubt the first thought in the minds of many will be whether even yet anything has been obtained in the way of a cure for diabetes as distinct from a welcome alleviation of one or more of its most troublesome symptoms. The report of the Medical Research Council is quite definite on this point. As yet there is no satisfactory evidence—time has hardly allowed of that—to show that diabetes in its most serious forms can be completely cured by insulin. Under insulin treatment tolerance may and does alter in the direction of improvement; it does not necessarily do so; it has even changed for the worse. In a man, for three years on starvation diet, who had dropped from 14 to 6 st. in weight, a small dosage of insulin made him at first sugar free; when the diet was made more generous the dose of insulin had to be quadrupled in order to keep the urine free from sugar. But whatever the details that remain to be worked out, there is no doubt that the clinician has at long last come into the heritage of LANGERHANS and LAGUESSE.

Annotations.

"Ne quid nimis."

THE BOWMAN LECTURE.

THE Bowman lecture to the Annual Congress of the Ophthalmological Society was delivered by Dr. George de Schweinitz, President of the American Medical Association, who took as his subject *Certain Ocular Aspects of Pituitary Body Disorders, mainly Exclusive of the Visual Central and Peripheral Hemipic Field Defects*. After paying a tribute to the memory of Sir William Bowman, the lecturer detailed the results of his researches, in conjunction with Dr. J. Parsons Schaeffer, professor of anatomy in the Jefferson Medical College, Philadelphia, into the anatomy of the pituitary region. In 125 bodies examined it was found that the optic chiasma was in direct relation to the chiasmatic sulcus in only 5 (or 4 per cent.), although this was the position universally assigned to it in anatomical text-books. The relationship of the chiasma to the diaphragma of the hypophysis was also variable; in 96 per cent. the chiasma lay wholly or partly over the diaphragma; rarely it lay completely behind the diaphragma upon the dorsum sellæ. Thus, while in the majority of cases the pressure of a tumour of the pituitary body of sufficient size would tend to fall upon the cross fibres of the chiasma, in those cases where the chiasma lay upon the dorsum sellæ the tumour would tend to separate the optic nerves without in any way stretching the cross fibres of the chiasma. The space between the diaphragma and the hypophysis varied from a potential cleft up to 10 mm. and was dependent upon the degree of development of the brain stem and the level of the tentorium cerebelli. Further, the diaphragma itself showed considerable variations; it might be stout, or frail and fenestrated. Considerable enlargement of the pituitary body might therefore exist before any pressure effect could be exerted upon the chiasma. The vessels of the circle of Willis also were very variable. While the visual arrangement brought the anterior cerebral arteries into relationship with the optic nerves in front of the chiasma, there were cases in which one or both vessels crossed the chiasma or even the optic tracts. Again, the posterior communicating arteries had an occasional and varying relationship to the optic tracts. These variations were sufficiently common to make it possible that vascular constriction might upon occasion play an important part in the production of field defects in cases of pituitary tumour.

As the result of his anatomical observations the lecturer concluded that there was a difficulty in accepting pressure or traction (or both) upon the optic chiasma in cases of pituitary tumour as the sole cause of the field changes. The scotomata which could not be explained upon the pressure or traction theory might, he suggested, be due to a toxic effect; toxins from the tumour might conceivably attack first the more highly specialised macular fibres. The possible anatomical pathway by which the toxins might reach these fibres was discussed at considerable length. In support of this theory Dr. de Schweinitz pointed out that the physiological pituitary enlargement of pregnancy which frequently produced an appreciable degree of hemianopsia never gave rise to a scotoma; in these cases it was supposed that there was no toxin from the pituitary. After discussing the progress of the hemianopsia of pituitary enlargement, the lecturer pointed out how these manifestations might be confused with those due to toxic amblyopia, sphenoiditis, or tabes dorsalis; the differential diagnosis was to be made by careful perimetric observations by modern methods, since each disease had its distinguishing features. Tabes dorsalis was, however, not infrequently associated with pituitary derangement; indeed, it had been

suggested that Charcot's arthropathy was a result of hypophyseal change. After double oophorectomy the lecturer had observed similar visual changes to those of pregnancy, but in this case the changes were permanent. The assertion that in methyl alcohol blindness, which at the present time was attracting considerable attention in America, the primary lesion was in the pituitary body was disproved by the lecturer's experiments upon dogs. The comparative frequency of tuberculous lesions of the pituitary body was also referred to and the possibility of a causal relationship between these and tuberculous affections of the eye. Earlier diagnosis of pituitary tumour might be hoped for when the significance of the "pituitary types" of headache (which often existed for years before any other change was apparent), and of the earliest appearance of amblyopia was more generally recognised. A further aid to diagnosis was the peculiar pallor of the optic disc very characteristic of pituitary disorder. As regards the adjuncts to the surgical treatment of pituitary tumour, radiation by X rays or radium helped to prevent recurrence and was beneficial where the return of visual changes showed that recurrence had taken place. Medicinal treatment by a combination of mercury and pituitary extract was also helpful; mercury seemed to be a powerful adjunct to pituitary extract even when there was no possibility of a syphilitic element in the case. In conclusion, the lecturer pointed out that the X rays might be most fallacious as a means of diagnosis, since very extensive enlargement of the pituitary might exist without any demonstrable change in the sella turcica.

SICKNESS AND OCCUPATION.

SICKNESS has become since the establishment of National Health Insurance a direct economic issue for the community; it has always been an economic issue for the person afflicted. Yet our only measure to-day of the health of the community, or of its constituent parts, continues to be mortality-rates. There is no useful information available concerning sickness-rates distributed by causation and age. Nevertheless the fact attracted attention long ago that influences conducive to morbidity are not identical with those which concern mortality. Thus, Finlaison in 1854 wrote that "locality, although exercising a certain virtue perhaps on the position of an individual attacked with sickness, had not very much to do with the average amount of demand which was likely to be made on the funds of a friendly society. . . . The only practical difference in the distribution of sickness that could be discovered was seen to turn on the amount of physical force called out by the occupation of the contributors." Neison in 1857 and Watson in 1903 followed up the point, and found little positive correlation between morbidity and mortality rates; in fact, the two indices might be negatively correlated. Watson further observed that geographical variations in mortality were greater than occupational variations, but that the reverse held good for sickness.

Clearly, then, if the outgoings for National Health Insurance are to be curtailed by lessening sickness, knowledge is needed of its prevalence and type in occupations. Once this has been acquired, efforts at prevention can be directed with some chance of success. The possibilities are great, as studies which are now being made in the United States indicate. The Public Health Service there, through the co-operation of a number of manufacturing companies and sick-benefit associations of employees, collect information as to invalidity experienced and its diagnosed causes. From time to time summaries are published in the Public Health Reports; they are of great value, even though they possess one marked drawback in not being distributed according to the age of those employed. This matter of age distribution is as important for sickness-rates as for mortality; thus, Finlaison formulated a law that "the sickness undergone during the first 25 years of working life

is the exact moiety of that distributed over the second 25 years." If, however, we assume, although the assumption is no small one, that the age distribution of those employed in the various reporting establishments is roughly the same, then comparisons can be instituted. When this is done such differences are found as 348 cases of sickness per 1000 persons per year in one establishment and only 48 cases in another. These are the extremes stated in the last report issued.¹

The information shows how sickness varies with season, particularly for all complaints which concern the respiratory organs; here the limits of variation are from 25 cases per 1000 in February to 6.7 cases in July. Bronchial affections stand out easily as first, so long as no epidemic of influenza is prevalent. Diseases of the digestive, circulatory, and nervous systems show much less variation according to season. Certain great causes of mortality, such for instance as tuberculosis, are found to play quite a subsidiary part in causing sickness. The difference found in the frequency of disease at different industrial concerns is striking. The standard attained at one concern should be possible at another; and knowledge that such standards have been attained should be stimulating to a health rivalry. The data as presented certainly indicate that great opportunities exist for reducing disability rates in industry. The present studies cannot be looked upon as more than breaking the ground of a new and untouched science. It is one, however, that for economic reasons we need to cultivate in this country, where, as in America, "before the problem can be intelligently attacked, we must ascertain in as much detail as possible, the causes of the widely different sickness-rates of certain industrial establishments"—and, we would add, of different occupations.

OPERATIONS FOR EXOPHTHALMIC GOITRE.

It is still frequently urged that the surgical treatment of exophthalmic goitre involves too high a risk to the patient. In the past, when the subjects on this disease were only handed over to the surgeon in the later stages, when the dangers in the use of chloroform were not recognised, and when the gland was more roughly handled and hæmorrhage was allowed to be more free, this may have been true. Little by little the mortality has been reduced, and in this country the published figures of James Berry, A. J. Walton, W. H. C. Romanis, and others have shown that if care be exercised the risk is but little greater than that of major operations. Dr. J. de J. Pemberton has now published the collected figures of the Mayo Institute in the *Journal of Surgery, Gynecology, and Obstetrics*. His paper is of considerable value in that it so clearly shows what are the possible causes of death and what are the best methods of avoiding them. In the year 1922 1093 cases of exophthalmic goitre were operated upon at this Institute. Stress is laid upon the fact that these cases were all true examples of exophthalmic goitre, a very necessary reminder, for the opponents of this form of treatment invariably claim that the good results are due to the inclusion of cases of simple goitre which may be operated upon without risk. For a case to be regarded as a true exophthalmic goitre it is necessary that the clinical findings, the basal metabolic rate, and the pathological investigation are all positive. Including such cases only in this group, Pemberton found that in the 1093 cases there was a mortality of only 1 per cent. It is well realised that in the earlier stages of the disease the risk of operation is much less, and it is probably largely because such cases are now coming to surgical treatment earlier in their course that such admirable results are obtained. Although the total mortality is so low, there are many possible causes of death. Any operation is not only likely to lead to an acute exacerbation of the hyper-

thyroidism, but if the disease has been of long existence the profound toxæmia may have caused secondary changes in the other viscera such as the heart, liver, and kidneys. The possibility of an acute hyperthyroidism may be diminished by careful preliminary treatment. At the Mayo Clinic it was found that 30-40 per cent. were in sufficiently good condition for early operation, 30 per cent. or so required 10-14 days medical treatment, and the remainder required some preliminary operation, such as ligation of the vessels. This preparatory treatment is of extreme value in lessening the danger when other visceral changes are present.

It has been long noted by many observers that if during the course of the operation the hæmorrhage is severe, the outlook is likely to be serious, but there is still some doubt as to whether these cases stand hæmorrhage badly or whether they bleed more because they are more serious cases and hence stand operation poorly. There can be no question, however, that every precaution must be taken to prevent loss of blood. For this reason every step of the operation must be slowly and methodically carried out, and every vessel should be tied before it is cut. By exercising care in the preliminary treatment, by careful choice of the time of operation and attention to detail in the operative technique, much may be done to lessen the other accidental complications. Special stress is laid upon the importance of operating before advanced changes have occurred in the other viscera, for it is the presence of such changes which so greatly increases the danger, a point to be remembered by those favouring the more conservative methods of treatment. Above all, it is clearly shown that in these cases, as indeed in all branches of surgery, correct diagnosis, skilled preliminary treatment, a careful selection of time of operation, and a knowledge of the after-dangers are as essential as technical skill in operating, points which need to be emphasised in these days when surgery is widely practised outside the teaching schools.

COMPLEMENT FIXATION IN TYPHOID DIAGNOSIS.

It has been felt for some time in Pretoria that the laboratory diagnosis of typhoid fever by the Widal test was far from satisfactory, and the annual reports of the South African Institute for Medical Research at Johannesburg have commented on the large number of cases of fever which are on clinical grounds clear and unambiguous typhoid in which the agglutination test has proved negative. The question is reviewed at length by Dr. Adrianus Pijper¹ in the light of an abundant and very careful personal experience. Using strains of bacilli from Europe as well as from local sources and the "standard" bacillary suspensions and sera issued from Oxford and Utrecht, he has made a special study of 120 cases which on general clinical grounds were regarded as undoubted typhoid; in 66, attempts at blood culture were made which were successful in 61. Of 199 blood specimens taken altogether, 20 per cent. gave no agglutination at all; of 73 patients who were tested more than once, 10 persistently failed to give any positive result. Taking a limit of agglutination at 1 in 40 as a "positive Widal," only 62 per cent. of the samples were positive. The readiest explanations which will be given for such results are that the patients had not, in fact, got typhoid fever or that the technique was in error. Dr. Pijper has been unable to find any case of paratyphoid infection in Pretoria and he is alive to the possibility of the presence of Malta fever, which he has on rare occasions identified. Errors of diagnosis can, however, be best disposed of by restricting our consideration to those cases in which verified typhoid bacilli were isolated from the blood. From 61 such cases 117 blood samples were examined, of which 44 gave a "negative Widal." The technique seems to have been thoroughly checked and the obvious possibility that there was

¹ Morbidity Among a Group of Wage-Earners. Public Health Reports, vol. xxxvii., No. 52. December, 1922. Washington Government Printing Office.

¹ South African Medical Record, 1923, vol. xxi., pp. 51 and 74.

something exceptional about the strain of bacillus used for the tests can be completely excluded owing to the great variety of cultures from different sources which Dr. Pijper tried. He also shows that culturally and serologically the infecting bacillus in Pretoria is identical with the European typhoid bacillus. From his results the author draws the natural conclusion that for purposes of rapid helpful diagnosis in the early stages of the disease the Widal test is not quite as good as some people have thought. His contribution is, however, something more than the old plaint that laboratory methods of diagnosis are not infallible, for, having put his penny in the slot with unsatisfactory results, he has devised another machine which works more certainly. Using a simple saline suspension of bacteria as "antigen," he got 96 per cent. positive results by complement fixation in the same series of sera which gave only 62 per cent. "positive Widal" tests; of the 120 patients one alone was never positive and no positive result was obtained in 60 controls. The method is more likely than agglutination to give a positive result in the early stages of the disease and the significance of a negative is so much the greater. In persons who have been inoculated, complement fixation generally soon becomes negative, although agglutination persists, which gives the former method a further point of advantage. It is of a good deal of general interest to note that the two reactions do not run parallel, and while the author has made out a strong case for his conclusion that "Widal's reaction ought to be replaced by specific complement-fixation tests," it is to be hoped that for a time, at any rate, the two methods may be tried together and their differences and similarities more closely studied.

THE MEASUREMENT OF VITAL CAPACITY.

SOMETHING over 70 years ago Dr. John Hutchinson published a little monograph on the spirometer after working for many years on the quantity of gases used in respiration and making thousands of observations. His discovery of the value of spirometry was not a mere fluke, for he was a close student of the coal-mines of his native Northumberland, and it was his knowledge of coal-gases which led him to adapt the principle of the gasometer to measure the respiratory disability. Later, as assistant physician to the Brompton Hospital, he urged the general use of the spirometer for the detection of early or threatened phthisis. Prof. G. Dreyer, of Oxford,¹ recently brought these observations of Hutchinson to the light of day and himself continued the investigation into the normal vital capacity of man, bringing it into relation with the size of the body. Prof. Dreyer correlated vital capacity with other physical measurements, with a view to obtaining a working guide to physical fitness under different conditions and in different classes of individuals. Formulæ were evolved to define the relationships between vital capacity, body surface, body weight, trunk length, and chest circumference. In association with Dr. L. S. T. Burrell,² it was demonstrated that in pulmonary tuberculosis there was a definite decrease in vital capacity from the normal for the individual of that occupation and mode of life. Improvement in the clinical condition was found to be accompanied by an increased vital capacity which might be used to measure the benefit received from treatment. Several papers have appeared since, confirming the value of vital capacity estimation in diagnosis, prognosis, and treatment. The mathematics of the subject has now been made the object of an elaborate study by biometricians, one of whom, Miss E. C. C. Allen, died during the course of the work. In *Biometrika* for March Lucy D. Cripps, Major Greenwood, and Ethel M. Newbold give the results of this study of the inter-relations of vital capacity, stature, stem length, and weight, in a sample of healthy male adults. The monograph confines itself to the

simple biometric question, with what success can vital capacity be expressed as a function of other bodily measurement such as stature and body weight. The conclusion is drawn that the relation between vital capacity and these other factors is rather better described by multiple linear regression formulæ than by the rational formulæ of Dreyer. The variability of the vital capacity of normal male adults is very great and it remains very great—being reduced by less than 25 per cent. of its initial value—when as many as four independent variables are used for estimation. It does not appear that either biometric or rational formulæ can deduce from anthropometric constants estimates of normal vital capacity within sufficiently narrow limits to possess real prognostic value in individual cases. Hutchinson's method therefore remains as good as or better than its recent modifications.

FRACTURE-DISLOCATIONS OF THE HIP-JOINT.

IN the *Journal of the American Medical Association* for March 17th Dr. Guy Hinsdale reports a case of a fracture-dislocation of the hip in a woman of 55 years, weighing between 11 and 12 stones, who fell in landing from a motor launch in such a way that the whole force of the fall was brought to bear on the region of the left hip. Attempts at reduction under general anaesthesia failed, though the head of the femur could be manipulated opposite the acetabulum. During these manoeuvres crepitus could be distinctly felt. An X ray photograph showed a fracture of the head of the femur, the fragment lying on the lower margin of the acetabulum, there being a posterior dislocation on to the dorsum ili in addition. The fragment, removed by exposure of the joint, was found to comprise about one-third of the head, including the attachment of the ligamentum teres. The subsequent convalescence was uneventful, and a perfectly useful limb resulted. As Dr. Hinsdale points out, fractures of the femoral head are not common, while fracture-dislocations are very rare. If the anatomy and function of the hip- and shoulder-joints be contrasted, it will be readily understood why this lesion is so rare in the one and so common in the other. A search through the literature of the past ten years reveals only one case of a fracture-dislocation of the hip, described by W. C. Campbell last year in the same journal. Dr. Campbell's case was exactly comparable to the subcoracoid dislocation of the humerus with avulsion of the great tuberosity, in that there was a perineal dislocation of the femur with a fracture of the trochanter. Dr. Hinsdale's case is possibly unique, and points a useful moral of the ever-present necessity of taking an X ray photograph in all cases of suspected fracture. It is conceivable that in this case, if a reduction had been easily effected, a photograph might have been omitted, when a painful joint would have resulted with limitation of movement due to the fracture.

LES PETITS PSYCHOPATHES.

Dr. Petre Trisca has been commissioned by the Roumanian Government to gather information as to the methods of dealing with mental disease now employed in France, and has published in book form¹ a preliminary report on the results of his inquiries. The earlier part is historical. He sketches the appalling condition of the insane before their humane treatment was introduced in France by Pinel, and carries on the narrative by outlining the careers of Pinel, Esquirol, Ferrus, Voisin, and Guislain, indicating the part played by each in reforming the treatment of the insane. For information as to present conditions Dr. Trisca is indebted to the officers of the "Comité d'Hygiène mentale" and the "Ligue de Prophylaxie et d'Hygiène mentales." These organisations, which embody the progressive element in French psychiatry, were founded in 1920 and 1918 respectively, the

¹ THE LANCET, 1919, ii., 227.

² Ibid., 1920, i., 1212.

¹ La Prophylaxie Mentale. By Dr. Petre Trisca. Paris: A. Maloine et Fils. Pp. 214. Fr. 20.

former being a governmental committee with corresponding powers, and the latter a society of private individuals with an extensive membership, exerting its influence chiefly by means of propaganda. At the psychiatric clinics in France treatment is provided for sufferers from minor forms of mental disorder ("les petits psychopathes," as they are called in France; a corresponding English term does not exist, and is much needed), and Dr. Trisca gives an account of the work of corresponding clinics in Switzerland and Germany. Much attention is devoted by him to the social service system of America, whereby the home conditions of the patient are observed and to some extent controlled. He is impressed by the necessity of smoothing the path of the patient discharged as cured from an asylum by educating his relatives to receive him in the right way, by finding him work, and, if necessary, by maintaining his treatment. This work, which is carried out in England by the Mental After-Care Association, depends to a great extent for its success on the re-education of the public in matters of insanity, a wider issue to which less prominence is given in the programmes of these French organisations than it would appear to merit. Another important variety of the work in view is the classification of industrial and other workers according to their mental capacity. Not only can industry benefit by the mental suitability of each employee for the work he is doing, but the employee is spared the danger of ill-health, either physical or mental, due to excessive fatigue produced by work for which his powers are unsuited. The lengths to which this project has been carried in America and Germany are known, and the results of applying the Binet-Simon tests to recruits in the American Army have been the subject of comment in our own press. More adequate provision might well be made in France for the education of the mentally defective. A law enabling local authorities to found schools for this purpose was passed in 1909, but very few such schools have come into existence.

The most pressing need of all is provision for the potential insane, the uncertifiable people of small means suffering from hysteria, phobias, and compulsions, depression, hypochondria, anxiety states, and drug habits. Dr. Trisca describes a number of such cases in an appendix to his book; the melancholy conclusion to be drawn from almost every one is that nothing effective could be done unless the patient could be taken into an institution, whereas very few beds are yet available for illness of this kind. Dr. Trisca has apparently not visited England, nor does he refer to any work in this direction now being done in this country. He has, however, collected sufficient data in France to provide his own Government at Bucharest with work for some time to come, and one can only hope that the political situation there, which hardly seems favourable at the moment for changes of this kind, may improve sufficiently to enable him to use his experience in the achievement of some practical reforms.

A VISION OF PREVENTIVE MEDICINE.

Dr. John Dill Robertson, formerly health commissioner of Chicago, has lately published a paper with the provocative title *The Health Officer's Challenge to the General Practitioner*.¹ There is a provocative spirit in the body of his paper as well as in its title, and this spirit is intentional for, as Dr. Robertson says, "I hope the message may irritate him (the general practitioner) sufficiently to stimulate him to assume his proper duties—it seems there is not much stimulation without irritation." Two quotations may show what Dr. Robertson means by stimulating by irritation. "I charge the general practitioner with negligence—aye, with criminal negligence of his own families. . . . I do it in the hope that somehow, some way, he may get the message, and that he may heed it in time to forestall

State medicine." Another passage runs: "We find the general practitioner, in many of our cities, obstructing, finding fault, with modern progressive ideas for health conservation; and this is not confined alone to the neighbourhood physician, but to many of our so-called leaders in the medical profession." So much for stimulation by irritation. Having harrowed his soil, Dr. Robertson proceeds to fertilise it with constructive ideas. He points out that in Chicago there are about 600 individuals to each physician. If each physician were to assume responsibility for keeping each of these 600 well by carrying out annual physical examinations, by vaccinating them against small-pox and typhoid fever, by encouraging the use of pasteurised milk, and by keeping children away from open cases of tuberculosis, then ". . . there would be but few sick out of their 600. . . ." Dr. Robertson's advice is detailed as well as general. To the potential convert to preventive medicine he says: "Go to your office to-morrow morning, take down your record and find how many people there are for whom you are the family physician. Take those that have been to your office during the past year; write them a letter; tell them you would like to have them drop into your office, that you would like to talk to them . . . and sell them the idea of health. . . . Tell them that they should have a thorough physical examination . . . and when you make this examination, make an examination that will impress them, not a careless one, not a stick-out-your-tongue-let-me-feel-your-pulse examination, but an examination that they will talk about . . . an examination from head to foot . . . ; and when you get all through with your instructions and with your examination, then you are ready to have them sign up with you for a continual, continuous audit of their physical banking account." Dr. Robertson knows how to temper idealism with lucrative realism, for he adds: "and when you have 600 patients signed up you will be amazed at the fact that your income has doubled and trebled in the course of a year."

IDIOSYNCRASIES OF BLOOD-VESSELS.

THE classic study of the phenomena of the circulation has depended chiefly on the transparency of the tissues in such membranes as the web of the frog's foot, its lungs, mesentery, retro-lingual membrane, and thin muscles, and in more or less transparent tissues in mammals. A method for observing the circulation of the blood in the cutaneous capillaries of man by means of a powerful beam of light falling on the surface of the skin was devised by E. Weiss, and this method has been used successfully in the medical clinic of Tübingen. Ernst Wertheimer of the Physiological Laboratory, University of Halle, has employed a similar method whereby it is possible, by directing the light from a powerful Nernst lamp, to study the intact circulation in the organs of curarised or narcotised frogs.¹

In the case of living *muscle* in situ, the most convenient muscles were found to be those on the flexor side of the arm or leg. The brilliantly illuminated surface of the muscle or other organ is first irrigated several times with Ringer's fluid at room temperature and then the fluid containing the substance to be investigated is similarly applied to the vascular part of the organ. Minute quantities of lactic or phosphoric acid (1/2000 to 1/10,000) cause the smallest blood-vessels of striped muscle to dilate gradually and accelerate the circulation. Too strong concentrations of these acids at first cause narrowing and often dilatation of the vessels. Other acids, acetic and hydrochloric acids, did not give such definite results. It would seem that metabolites of muscular activity such as lactic and phosphoric acids, influence favourably the circulation in muscle. Na_2CO_3 (1/1000) constricts the vessels, may cause capillaries to disappear, and arrests the circulation. Adrenalin (1/10,000 to 1/40,000) has a definite

¹ Bulletin City of Chicago Municipal Tuberculosis Sanitarium, March, 1923.

¹ Pfüger's Arch. f. d. gesam. Physiol., vol. cxvii., 1922.

slow vaso-constrictor effect, the capillaries become narrower, and the circulation at length ceases; but the action of adrenalin on muscle vessels is by no means so prompt as on the intestinal vessels. Choline and pilocarpine showed no action. The moderately inflated lung is admirably adapted for the study of drugs on its blood-vessels. In contrast to the blood-vessels of most other organs, its vessels are largely indifferent to drugs that affect vascular tissues of other organs. Adrenalin in the above-mentioned concentration is without effect, but a supersaturated solution of CO₂ accelerates the circulation in the lungs, while weak alkaline solutions produce the opposite effect. Choline, which is formed in the intestinal canal, has a specific action on the circulation in the *intestinal wall*, which it dilates and accelerates. Pilocarpine has a similar action. Atropine (1/1000) does not appear to act on the normal intestinal circulation, but when the blood-vessels are dilated by choline atropine causes constriction. Ca and Mg accelerate the flow, while K narrows the vessels; but in any case a certain relation between the potassium and calcium salts is necessary, for if the former are in excess, the choline action does not occur, if the latter is in excess, the result is the reverse. The choline action is also reversed by the previous application of preparations of thyroid and pituitary gland. Adrenalin acts definitely on the circulation of the intestine, liver, and spleen, it constricts the blood-vessels of the kidney and dilates those of the suprarenal body.

The author concludes that each organ is provided with blood-vessels peculiar to itself, and that the blood-vessels of one area react differently from those of another vascular area. Substances resulting from the metabolism of different organs, and in part excreted by them, are of great importance for the condition of the blood-vessels of the corresponding organs and for the increased circulation of the blood during increased functional activity—e.g., lactic and phosphoric acid in muscle, choline in the intestine, adrenalin in the suprarenal, and CO₂ in the lungs.

THE PROGNOSIS AND TREATMENT OF SPONTANEOUS PNEUMOTHORAX.

In the *Schweizerische medizinische Wochenschrift* for March 22nd there is a paper by the late Dr. Lucius Spengler, who had a long and varied experience of spontaneous pneumothorax in the subjects of pulmonary tuberculosis. It is curious how remarkably the results achieved by various physicians differ. Some regard a spontaneous pneumothorax, occurring in the course of pulmonary tuberculosis, as an almost invariably fatal complication. Drasche's statistics would seem to justify this pessimism, for there was only one recovery among 189 cases. West's results were only a little better; there were 11 recoveries among 167 cases. Dr. Spengler, in the course of 30 years, treated 42 cases of spontaneous tuberculous pneumothorax, and in as many as 16, or 38 per cent., the patients recovered from the pneumothorax. In seven of these cases the patients also recovered completely from the pulmonary tuberculosis, this recovery being maintained for several years. Only in four cases did the patients die within a week of the accident, but there were as many as 15 who died between the second week and the second year. In almost every case the pulmonary disease was progressive at the time of the accident, and it is noteworthy that the average age of the 16 patients who recovered from the pneumothorax was only 24 years. In 11 of these 16 cases the disease was unilateral, and in none of them did a purulent "malignant" pleural effusion occur. These facts explain in part the comparatively high proportion of successes achieved by Dr. Spengler. But they do not explain them entirely, and it is probable that many of the patients owed their lives to the patient skill with which Dr. Spengler attended them. One of his guiding principles was to encourage every condition likely to favour permanent closure of the rift in the lung and visceral pleura. Realising that a large effusion may provide much fibrin where-

with to plaster the pleura and close this rift, he was careful not to aspirate wholesale, and when artificial pneumothorax treatment was introduced he adopted the principle of partial gas replacement. He found that when the pneumothorax remained dry, the rift in the lung was apt to keep open, and to close it he advocated the introduction of some pleural irritant with a view to provoking a small effusion which would plaster the lung with fibrin. In one such case he introduced 30 c.cm. of a 30 per cent. solution of grape-sugar in normal saline, and the small effusion which formed proved most beneficial. Another reason for Dr. Spengler's high proportion of successes may have been his inclusion of cases which, in less skilled hands, might have escaped diagnosis. Recent work in America has shown that many cases of spontaneous pneumothorax give rise to such slight symptoms that, but for the help of the X rays and careful clinical examination, they would escape notice. Indeed, it is probable that most cases of spontaneous pneumothorax in consumptives are not diagnosed as such.

THE CANCER PROBLEM.

WE have just received the annual report of the Cancer Commission of Harvard University for the year 1921-22. This volume of 70 pages contains little that is of interest to the clinician and has no reference to any work having been carried out dealing with the central problems of cancer. At one time the Collis P. Huntington Fund, which is under the control of the Cancer Commission of Harvard University, was one of the centres of the scientific investigation of cancer by experimental methods. Some years ago the Committee decided to drop this line of cancer research and to devote all its resources to the clinical treatment of cancer and to the development of radiotherapy. It is a matter of regret that the oldest university in the States should in this field have abandoned its high academic traditions as a consequence of the loss of faith of its Cancer Committee in scientific investigation. To many it will seem that courage has failed the workers at a most unfortunate moment. We had occasion recently in reviewing the first volume of the *Proceedings* of the Leeuwenhoek Vereeniging to draw attention to the important advances which have been made during the last few years in our knowledge of cancer. The work of Fibiger in Copenhagen and of Yamagiwa and Ishikawa in Japan has opened up a new line of research which has been and is being actively pursued all over the world in such leading cancer research laboratories as the Crocker Cancer Research Fund in New York, the Imperial Cancer Research Fund in London, the Cancer Hospital in London, and the Antoni van Leeuwenhoek Huis in Amsterdam. We hope that the great University of Harvard will take heart again.

THE third annual report, issued to-day,¹ of the Industrial Fatigue Research Board records an important stage in the history of the work. Up to the present the staff of investigators have been feeling their way through the many opportunities existing in the industrial field, but the time is now arriving when as the combined result of their investigations principles of general application begin to appear. Four independent inquiries have shown the advantage alike to manufacture and to personnel of avoiding excessive moisture in cotton-weaving sheds; two recent reports confirm the increased productive efficiency as a result of better lighting in weaving; from different sources the curve of output and the curve of accident have been shown to correspond fairly closely. The Board proposes to continue the study of fatigue and efficiency on general lines, regarding no study as complete until definite numerical values can be attached to it. Satisfaction is expressed at the growing interest shown by manufacturers in the work of the Board and at the growing usefulness of the recently formed National Institute of Industrial Psychology.

¹ Medical Research Council. 2s.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XVIII.

HEART FAILURE: PREVENTIVE TREATMENT.¹

Prophylaxis.—The two great single causes of heart disease are acute rheumatism and syphilis. The removal of enlarged tonsils in children lessens the risk of rheumatic infection. Salicylate should not only be given in adequate doses during the acute stage of rheumatism, but continued in smaller doses—e.g., gr. x., t.d.s.—for many weeks without intermission as a routine in a restful convalescence; iron and cod-liver oil should be the accessories. Similarly, thorough treatment of syphilis is likely to reduce the incidence of syphilitic aortitis which so often involves heart as well as aorta.

General Management.

When a patient is known to have heart disease, and failure is not yet in evidence, there are certain measures calculated to postpone or even prevent failure. It may be permissible to reiterate them, for some are forgotten in the hurry of practice. It is better that the underclothing should be thick than that the patient should carry about the load of a heavy overcoat, and for this a light fleecy one may be substituted. Thick socks or stockings are advisable and boots which are waterproof and big enough. As sleep is so important, in winter the air of the bedroom should be warmed as well as the bed itself, for it is often the change to the cold air of the bedroom which starts the nightly cough. Where failure is hardly avoided the bedroom may with advantage be on the ground floor. In the daily life of these potential invalids there is greater need of physical rest. An hour earlier to bed each night and a half day in bed on Sundays, or a whole day in bed once a week is a good rule. They should have a first call on the couch and choose it rather than a chair, for instance when they read in the evening. If it can possibly be arranged, they should remain indoors on wild and damp days so as to lessen the risks of catarrhal infection. If in spite of all precautions acute bronchitis, influenza, tonsillitis, or one of the infections of unknown origin reaches the patient, he should be longer in bed and have a longer convalescence than his robust fellows. A source of infection, such as enlarged tonsils or pyorrhoea, must be treated at any age not only because it may dispose to earlier failure, but also to eliminate sources of secondary infection which may increase the risk of infective endocarditis.

Diet.—There is no reason why the diet in chronic heart disease without failure should be much modified. A dry mixed diet will meet the ordinary needs in limiting the fluid intake, and in avoiding the flatulence which is the chief dyspeptic difficulty of these patients. They are tempted to take too much tea, and this should be restricted in amount, though it need not be inferior in strength any more than coffee, remembering the diuretic properties of these beverages. Many find that they are much better if they take meals of almost similar bulk during the day—breakfast, mid-day dinner, and tea approximating in amount. Hot milk or a hot milk preparation is very suitable alone as supper. If alcohol is taken it should be as light wine with meals, or weak spirits at night. It is unnecessary in most cases to interfere with moderate smoking habits; if dyspnoea is at all pronounced, this in itself will restrict the desire for it, but if pain of any severity or significance is present smoking almost always accentuates it and abstinence is well worth while.

¹ An article on the Therapeutics of Heart Failure will appear in the next issue of THE LANCET.

Exertion.—It is seldom such a difficulty as might be anticipated to decide when exertion is permissible in chronic heart disease. The cardinal symptom as a guide is breathlessness on exertion. This is Nature's brake where the heart is limited in power, and if the patient will learn to avoid exertion which evokes distress such exertion is not doing harm. We are not here dealing with acute infection of the heart where movement is limited on a principle (rest for repair) without regard to symptoms. Exercise within the limits imposed by the symptoms does no harm, but rather good in the patient with established heart disease free from complications. It improves the digestion, the muscular action aids the circulation, and the natural fatigue promotes sleep. Moreover, there is no better way to reassure the subject of cardiac disease than to permit reasonable exertion. He should make his own pace, noticing his greatest limitation at hills and in a high wind.

Employment.—A man so situated that he must work should strive to obtain a modified form of employment which entails less exertion than before, and if it is also one where regular attendance is not imperative it becomes almost ideal. Here is one of the advantages of home employment or trade where time off can be more easily obtained if premonitory symptoms of failure are noticed. Clerical or pay-box work in a small business, light bench work as a carpenter, sitting occupation in the jewellery and tobacco trades are some suitable forms of employment. One who has worked in a labour yard may become a checker or time-keeper. Tailoring is often suitable work, but heavy irons may have to be used. Basket-making is taught to some pensioners with heart disease. The employer should know that the men permitted to undertake such work are not likely to drop dead. Contrary to the lay view, patients with chronic heart disease usually take a long time to die. If we exclude acute infections of the heart, angina pectoris, syphilitic aortic incompetence or aneurysm, and arteriosclerosis with excessive pressure, we are left with the average case of rheumatic heart disease where the risk of sudden or unexpected death is remote. Incidentally, if this be true, it should be our pleasure to acquaint the patient with the fact and to act upon it.

The Prevention of Heart Failure in Acute Infections.

In many infections, as pneumonia, specific therapy is wanting and treatment centres round the heart and means for its support. By good nursing exertion is reduced to a minimum. Sleep is obtained and cough is relieved by morphine at night in the early stages. Later, if cyanosis appears, oxygen should be administered through the nose by a soft rubber catheter connected with the rubber tube instead of the wasteful funnel. If with cyanosis the veins are distended and circulatory embarrassment is obvious, a venesection to 10-20 ounces is indicated. Little reliance can be placed upon such popular drugs as caffeine, strychnine, and camphor if the heart is failing; pharmacological and clinical evidence of their efficacy is meagre. The same is true of brandy, though its narcotic or sedative action may be useful. There is more justification for the use of digitalis, for this drug can at least affect the heart, but there is no agreement as to whether it can or cannot ward off failure if given throughout an infection.

Postponement of Failure in Syphilitic Heart Disease.

The distinction between rheumatic and syphilitic aortic incompetence is more important than the distinction between aortic incompetence and mitral stenosis. A syphilitic history or a positive Wassermann reaction, in the absence of a rheumatic history, gives the key to a rational treatment for preventing heart failure. It is a tertiary lesion in a dangerous place. Hutchinson's pill (hyd. c. creta, pulv. ipecac. co., aa gr. i.) t.d.s., and a bitter mixture containing potassium iodide gr. x., also t.d.s., is convenient for

prolonged administration. In cases not progressive nor too advanced, after a month of such treatment the use of salvarsan should be considered. If decided upon, novarsenobillon intravenously, 0.3, 0.45, 0.6, 0.6, 0.6, 0.6 g. in successive weekly doses is suitable. By anti-syphilitic treatment we may postpone or prevent not only heart failure in its ordinary form, but the special dangers of angina pectoris and aneurysm.

Prevention of Heart Failure when Auricular Fibrillation is Established.

In every practice there will be some among the known subjects of heart disease, especially mitral stenosis, in whom the heart has become persistently irregular and rapid. Where the onset of fibrillation is recent, and in selected cases, quinidine may succeed in restoring the original regular rhythm, and to that extent may postpone failure. Where fibrillation occurs in paroxysms quinidine may also be useful, for it inhibits these attacks which are so often preliminary to established fibrillation.¹ In most cases, however, we have to accept the new phase in the life-history of the cardiac patient—he is the subject of auricular fibrillation, the pulse is permanently and completely irregular. Increased breathlessness on exertion, if nothing worse, tells of the nearness of heart failure. Rest makes surprisingly little difference either to the symptoms or to the character or rate of the pulse. Rest indeed does not meet the case, but digitalis usually meets it to such an extent as to render prolonged rest in bed superfluous. If any drug is indicated in any condition, digitalis is indicated here, and these patients have a right to a fair trial of it. In the average case it will be found that 10 minims of tincture of digitalis, B.P., three times a day, will reduce the breathlessness on exertion to a noticeable degree and restrain the pulse-rate to 60–80 a minute. To continue the right dose of digitalis indefinitely is the surest way to postpone failure indefinitely.

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Special Articles.

THE WORK OF THE PENSIONS MEDICAL SERVICE.

I. ENTITLEMENT TO PENSION.

OF all the issues left by the Great War none, perhaps, affects the public more nearly than that of pensions. The granting or withholding of pensions, their amount, the composition and conduct of medical boards, the payments of treatment and other supplementary allowances, the supply of artificial limbs, the care of insane ex-Service men—each in turn has agitated and still perturbs the public mind. The reports of our Parliamentary correspondent, published week by week in THE LANCET, show that the department responsible for the administration of war pensions discharges its duties under a constant running fire of criticism, often well-informed and helpful, but at times somewhat severe. To the medical profession, however, all these are matters of particular interest, and, if we were ourselves to join the critics it would be to say, first, that the extent to which practically every decision and act of the Pensions Department turns upon medical opinion has never been adequately and plainly set forth; and, secondly, that the general, and even the medical public, have never been fully informed of the great mass of medical work accomplished under the direction of the Ministry.

¹ THE LANCET, 1922, ii., 1267.

The Principle of Attributability.

Under the Royal Warrants the Minister of Pensions has power to grant pensions to officers and men in respect of injury or disease certified as attributable to or aggravated by military service during the war. So far as disablement pensions are concerned it is to be observed that the disability must be attributable to or aggravated by and not merely on service, and we believe that considerable misapprehension has arisen through failure to appreciate this distinction. The decision as to whether military service has, in fact, so caused or aggravated the disability is fundamental, for on this decision hangs not merely the right to pension, but to treatment at the cost of the State, to treatment allowances when in consequence of undergoing treatment the pensioner is prevented from following his remunerative employment; to other supplementary allowances for which the man may be eligible; to treatment combined with vocational training in a new occupation when this is recommended; and, it may be, to pension and allowances for the widows and dependents. This decision is based on medical opinion, the opinion of a medical board, or boards. Following this decision almost every action taken, the amount awarded, treatment and allowances, vocational training with treatment, and so on, turns on a medical point.

As in the great mass of cases the question of attributability or aggravation—or entitlement, as it has come to be named—has long since been settled on the basis of reports of the proceedings of medical boards of the Navy, Army, Air Force, Ministry of National Service and Ministry of Pensions, it may seem that now, with certain exceptions, this question is mainly of retrospective interest. Among these exceptions the principal are claims arising under Article 9 of the Royal Warrant where disablement reveals itself after discharge, and claims to widows' pension under Article 11. Surprising though it may be, claims on account of disablement due to military service are still, 18 months after the official termination of the war and more than four years after the actual cessation of hostilities, being preferred in large numbers for the first time. At present, excluding widows or dependents' cases, some 650 claims are made weekly, and fresh awards given at the average rate of 170 a week. Obviously, the greater the length of time which separates the claim and the military service of the claimant the greater the time and care required to come to a just decision. The whole of the official documents bearing on the claimant's medical history; extracts from hospitals in which he has been treated; the certificates of his pre-enlistment and post-discharge medical attendants, as well as those of his employers before and after the war, together with any other evidence the claimant may be able to produce, have to be anxiously considered in the light of the actual examination of the man, lest, on the one hand, injustice may be done by refusing the man his due, or, on the other hand, an injury may be done to all others properly pensioned, by conceding that to which the claimant is not entitled. In some cases the evidence of commanding officers and others, scattered in distant parts of the Empire, must be awaited, and bearing these facts in mind, the average time now taken in settling an Article 9 claim, between five and six weeks, is not unreasonable.

How the Principle is Determined.

At this point it may be well to refer to the machinery set up by the Ministry of Pensions in connexion with the determination of entitlement in its medical aspects. At the very beginning of this Ministry it became necessary to establish at headquarters, as part of the pensions medical services, a body of medical men, styled medical assessors, charged with the duty of examining the reports furnished by medical boards; of referring these reports back, where necessary, for further information, and generally of seeing that the medical grounds for decision were in accordance with the terms of the Royal Warrants.

In time, as a result of the wide experience gained, general directions for the guidance of medical boards were drawn up and issued to medical boards explaining the various Warrant provisions, at the same time emphasising the fact that the Ministry desired the unbiased, frank, and unfettered opinion of the examining doctors. These "general directions" have been considered section by section, have been amplified and amended by a Medical Disability Committee, specially appointed by the Minister, composed, as to the main committee, of the Presidents of the Royal College of Physicians and the Royal College of Surgeons, with eminent members of both Colleges, together with one or two representatives of the Ministry; and as to its numerous subcommittees, or main committee in special session, of consultants and specialists of the highest rank from all parts of the country. The Ministry, in fact, have wisely taken care to incorporate in these "directions" the authentic opinion of the medical profession of this country, as represented by its own acknowledged leaders. It seems equally certain that the views of the profession at large are reflected in the work of the medical boards of the Ministry. It is true that the numbers boarded weekly are only about one-half what they were two years ago, and that, in consequence, a smaller number of the general and specialist members of the profession are now occupied in this work. Thus, we understand that the number of officers and men boarded weekly at present is about 16,000 as compared with more than twice that number two years ago.

Medical Boards and their Staffs.

The numbers of medical men to-day employed by the Ministry of Pensions, either as whole-time salaried officials or employed part time on a sessional basis, may be taken as indicating the extent to which the medical profession at large share in the activities of the Ministry. We are informed that, not counting the 289 medical officials of the Ministry at headquarters and in the regions and the 226 whole-time salaried medical officers of Ministry hospitals and clinics, and disregarding 1600 medical referees, there are to-day over 4400 medical men serving on the medical boards and clinics of the Ministry, of whom 1269 are approved specialists—that is, that out of a total number of 6515 medical men engaged in the work of the Ministry, 515 are whole-time officers, and of these 289 are medical officials in the accepted usage of the term. It may be urged, however, that notwithstanding their sheer weight of numbers the decisions of medical boards and medical officers at hospitals or clinics may be over-riden by the comparatively small number of salaried medical officers. Here we are advised that a certain distinction has been necessarily drawn between an opinion on entitlement and one on assessment of degree of disablement, questions of a non-medical order, legal interpretations of the Warrants and ethical considerations as to misconduct and negligence entering into the former, whereas assessment of the degree of disablement is officially regarded as entirely for medical determination by the board examining the man. Certainly, however, entitlement to pension under the Warrant is mainly a medical question, and, therefore, it is reassuring to learn that, by Ministerial instruction, when a difference of medical opinion exists on a question of attributability or aggravation as between a board and a medical assessor or other official of the Ministry, the case must be referred to a medical board of reference for a decisive opinion on the medical aspect of the case.

Re-Survey and Appeal.

To the uninitiated the medical machine of boarding must seem somewhat elaborate. In addition to the ordinary medical boards examining men for the purposes of first awards and subsequent re-survey, there are medical appeal boards dealing with appeals against the amount awarded; neurological and other specialist boards; the medical boards of reference already mentioned; and special boards for the examina-

tion of men to whom the granting of final awards is under consideration. Each of the last four named boards contains an approved specialist as member to whose opinion the greatest weight is attached, and who, as a member of the outside medical public, cannot be accused of State bias. Almost invariably two, and frequently the whole three, members of these boards are medical men in general and specialist practice. As our readers are aware, the membership of the ordinary re-survey boards, which assess the degree of disablement, was reduced from three to two a year ago, and again almost invariably these boards are composed of members engaged in outside practice. It seems evident, therefore, that whatever charges may be brought against decisions on entitlement or assessment of disablement—and it is not to be denied that among the million and a half dealt with mistakes must have been made—the medical profession as a whole, both as regards the boards and the directions issued for their guidance, is directly concerned. The work—and we are here only considering entitlement and assessment—is responsible and often intricate; calls for exact clinical knowledge, judgment, wide knowledge of both medicine and men, and the constant exercise of tact and good-will to those who have served and suffered in the late war. There is every reason to believe that these requirements have been abundantly met. The medical boards have been well manned both as regards their ordinary and specialist members, the latter comprising consultants of high standing, whilst the consultant advisers of the Ministry at headquarters are all men of wide reputation and authority.

Quite naturally, considering the large numbers of men accepted for some form of service though already disabled to some extent on entry, doubts as to entitlement to State compensation must often have assailed the members of medical boards, but that, in accordance with Ministerial policy, the claimants have been generously accorded the benefit of doubt, and that each case is considered on its merits seems to be shown by the fact that whilst 1,500,000 disablement pensions have been awarded, only 300,000 claims have been rejected. There can, in fact, be no question that the provisions of the Royal Warrants on these medical aspects have been and are being fairly, indeed generously, interpreted and administered. This was, it will be remembered, the finding of an important departmental committee of inquiry two years ago.

CONTROL OF VENEREAL DISEASE.

REPRESSIVE MEASURES IN AMERICA.

THE forty-fifth annual report of the Department of Health of the State of New Jersey, 1922, a well-written document, which reflects much credit on Dr. J. C. Price, the director of the department, and his collaborators, will specially interest those who are working to control venereal disease. The estimated population of the State of New Jersey is 3½ millions, and from statistical tables in the report it appears that in the year 1921 compulsory enforcement of notification resulted in the reporting of 96 cases of chancroid, of 2738 cases of gonorrhoea, and of 3155 cases of syphilis. The number of cases for each of these diseases are not given separately for the two sexes; but of all three together 4541 male and 1448 female cases were notified. The death returns for these diseases are notoriously untrustworthy; but the statistical statement that the proportion between deaths and notified cases of venereal disease was 3 per cent. for the male and about 4·8 per cent. for the female cases appears to show that female are reported less completely than male cases. Whether so or not, it is highly improbable that the 5989 cases, which are less than 2 per 1000 of the population of the State, represent more than a fraction of the cases of venereal disease coming under the care of physicians in the State. In England and Wales the total number of new cases of venereal diseases coming under treat-

ment at the subsidised clinics in 1921 numbered about 1·6 per 1000 of population; a striking illustration of the virtue attaching to provision of facilities for treatment of patients as compared with compulsory notification with but a scanty provision of such facilities.

Demonstration Clinics in New Jersey.

The anti-venereal work in New Jersey has included the holding of demonstration clinics on the diagnosis and treatment of syphilis in ten cities in the State, which have been attended by over one-fifth of the medical practitioners in the State. Educational work has been done with three objects in view: to reduce the number of foci of infection, to reduce the opportunities for extra-marital sexual contacts, and to prevent sexual promiscuity. In preventing opportunities for promiscuous sexual intercourse stress has been laid on the education of special groups, with a view, for instance, to secure supervision of the juvenile delinquent who is likely to develop, if unaided, into the sexual prostitute, and with a view to repression of clandestine prostitution, the regulation of amusement places, &c. The prevention of sexual contacts outside the marriage state, it is appreciated, "resolves itself into the creating and crystallising of public opinion for the single standard of morality," and with this object in view carefully formulated educational work has been undertaken among key groups in every stratum of society. It is further recognised that the statement of biological, psychological, and sociological facts alone has relatively small influence in the building of character for individual chastity, this depending ultimately solely on a true education which includes character building.

The "Medical Case Worker."

Attention may be drawn to the efforts being made in New Jersey to fulfil the requirement of the State law to "investigate all cases that are under the care of reputable physicians and" to ascertain so far as is possible all sources of infection and exposures to the same." We wish further particulars had been given as to the practicability and extent of this work; so far it is evidently experimental in character. In one city a "medical case worker" has been appointed on the staff of the local board of health, and another for a group of municipalities. The medical case worker is expected to investigate the sources of infection of all known cases, both those treated in public clinics and those reported as delinquent by practising physicians; and is also expected to determine other foci of infection by the study of death and stillbirth records. There can be no doubt as to the value of this item. It is a class of work which, if it cannot be described as exactly neglected, is almost completely unexplored in the work of most sanitary authorities in England. Notification of stillbirths are received, and these only exceptionally are made the subject of inquiry, directed to ascertaining whether syphilis is concerned in the ante-natal death. It would be a valuable return if it could be ascertained by inquiry, for instance, in all the county boroughs of England and Wales, how many stillbirths were found in the year 1922 to be caused by syphilis. The inquiry would reveal how much anti-venereal work is waiting to be done: the inquiries in connexion with which would, it may be added, involve fewer delicate difficulties, than if cases of recent venereal disease in adults were to be the subject of domiciliary investigation.

Similar remarks apply to the large number of cases of interstitial keratitis and of other diseases indicating congenital syphilis which come under treatment in child-welfare centres, in the out-patient departments in children's and other hospitals, in work-house infirmaries, &c., in all of which most valuable familial anti-venereal work might be done with little risk of exciting friction or opposition, given tactful as well as zealous and intelligent workers.

"Suspected Contacts" in Illinois.

The new regulations promulgated by Dr. Isaac D. Rawlings, State Director of Public Health, are

distinctly severe, and are supported by a penalty of six months' imprisonment. "Any person known to be a common prostitute . . . or any man consorting with a common prostitute . . . or inmate of a house of ill-fame shall be deemed to be a suspected case of venereal or an infective carrier." If a person is known to have exposed himself or herself to infection, but is not found on examination to have venereal disease, he or she may be held by the health authorities as a "suspected contact" for the period of incubation of the suspected disease. If a suspected person refuses examination the refusal is considered evidence of infection, and the suspected person may be quarantined and his or her premises placarded exactly as though infection had been found. Doctors who have been in the habit of issuing certificates of freedom from venereal disease will continue this practice only at the risk of revocation of their licences. Druggists who sell preparations for the treatment of venereal disease must do so upon a doctor's prescription, or if no prescription is offered they must report the name and address of the purchaser to the health authorities. There is no doubt that a serious effort is on foot to deal with vice in the State, whose chief city has of late earned a distinctly unsavoury reputation in this respect. Whether some of these regulations by their very stringency may not defeat the object in view remains to be seen.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

THE KING INSTITUTE OF PREVENTIVE MEDICINE

THE report of the King Institute, Guindy, for the period from Jan. 1st, 1921, to March 31st, 1922, has just been issued, together with the Government review of its contents. The Director, Major J. Cunningham, I.M.S., in his introduction, describes the five main aspects of the Institute as follows: (1) A vaccine manufacturing depôt for the Madras Presidency; (2) a bacteriological laboratory for the manufacture of bacterial vaccines; (3) a laboratory for examination of clinical material for the Madras hospitals and the medical profession of the Presidency; (4) the Presidency public health laboratory; and (5) a research laboratory for the investigation of medical and public health problems. The Director points out that the various functions of the Institute are undertaken in most other provinces by two or more separate institutions. The Madras policy of concentration presents many advantages, especially as regards economy, whilst full opportunity is retained for expansion in every direction.

Vaccine Manufacture and Supply.

The decrease of 224,075 doses of vaccine lymph is undoubtedly due to the cessation of routine vaccination during the hot months, sanctioned by Government and brought into effect for the first time during the year under review. It is satisfactory to note that "a large proportion of those who were not vaccinated in the hot months presented themselves for vaccination during the cooler months." Major Cunningham estimates that cessation during the hot weather resulted in a net decrease of a little over 2000 vaccinations, but the expense and trouble of carrying out over 42,000 unsuccessful vaccinations have been saved. The stoppage has also been amply justified by the rise in the success rate from 66 to 75 per cent. The results obtained with 40·7 per cent. of the lymph issued are not known, and only a small proportion of this large number is due to revaccinations. It is not clear why all authorities and local bodies which receive supplies of lymph from the King Institute should not be compelled to furnish returns, so that the behaviour of the lymph can be gauged under all conditions. The merits of glycerine and lanoline lymph have been dealt with in a separate report on which the Government have already passed

orders.¹ By arrangement with the Director of Public Health and the President of the District Board, Chingleput, the Saidapet Range has been utilised by the King Institute for testing batches of lymph; this step has been of the greatest service, and there seems no reason why it should not be made permanent.

Monthly Success Rates.

The inferences drawn by the Director from the monthly success rates are: (1) That a stoppage of vaccination for two months is insufficient and that better results could be obtained by a four months' cessation throughout the Presidency, and (2) that the standard for successful vaccination adopted by the King Institute is higher than that generally accepted by the vaccination staff. Major Cunningham again emphasises the importance of taking into account the insertion success rate, and of the verification, as far as possible, of vaccination operations in the vesicle stage. Many cases are only verified after scar formation, and very small and doubtful scars are too often taken as evidence of success; these cases are in reality imperfectly protected or not protected at all, and when small-pox breaks out the disease may show a high incidence amongst the vaccinated. This fact disturbs public confidence in a well-proved measure of protection.

Bacterial Vaccines: Public Health.

The increasing demand for the anti-typhoid and anti-cholera vaccines is significant. Owing to the decline in the incidence of influenza, the number of doses of this vaccine dropped very considerably. In dealing with the public health section of the Institute, the Director draws attention to the ridiculously small number—61—of specimens sent for examination during the year. No standard of purity has yet been laid down for the common articles of diet in the Madras Presidency, although a "Food Adulteration Act" is on the Statute book, and it is understood that proposals for the appointment of a public analyst and the equipment of a laboratory are under the consideration of Government. Until these are provided the Food Adulteration Act will remain a dead letter.

Assistance to Other Departments: Education and Research.

A new feature of the report is a description of assistance rendered by the Institute to other departments. In this connexion Madras has again given the lead to other parts of India by the employment of bacteriological units sent out from the Institute for the investigation of special problems. The present report mentions the work done by such a unit in the Moplah Jail at Bellary, work which in a very short time effected a remarkable improvement in the health of the prisoners. Since then several other units have been sent out to different parts of the Presidency for the investigation of various epidemic outbreaks, and these have done extraordinarily good work. It is hoped that Government will encourage the system. The educational and research activities of the Institute are dealt with in the last pages of the report, and in conclusion the Director estimates the profits of the Institute as a whole at Rs.1,10,280, this estimate being based on the market value of the lymph, vaccines, and laboratory examinations made by the Institute staff.

The Prince of Wales's Hospital for Children, Madras.

It was decided that the great bulk of the money collected to celebrate the Prince of Wales's visit to Madras should be devoted to the erection of a children's hospital, with which Madras has been so far totally unprovided. A considerable sum of money was also collected after the armistice for the erection of a war memorial in the shape of a "Hall of Victory," but various difficulties have arisen to delay its completion. A medical school for women is to be

opened in Madras, and the present Victoria Caste and Gosha Hospital is to be replaced by a new hospital built alongside the new medical school. The Government have taken the opportunity to amalgamate the four buildings into one large group, to be built on vacant ground beside the Queen Mary's College for Women. The foundation-stones were laid on March 26th.

Madras, March 27th.

THE THIRTY-FIFTH CONGRESS OF INTERNAL MEDICINE AT VIENNA.

(Concluded from p. 868.)

THE third day was given up to a discussion on
Arterial Hypertension.

Prof. A. Durig (Vienna) and Prof. F. Volhard (Halle) introduced this subject. Prof. Durig dealt with the physiological aspect of the problem, pointing out that the pioneer researches were made in Vienna 80 years ago, when Ludwig, Basch, and Gärtner attacked the problem. The normal level of arterial tension was, he said, very variable, depending upon numerous physiological conditions such as muscular exertion, age, time of day, psychic state, and so on. It ranged between 90 mm. during sleep and 180 mm. Hg in the day; mere measurement of the blood pressure gave only values for comparison, not a definite test of hypertension. Hypertension was present if a disproportion existed between the quantity of blood expelled by the heart and the quantity of blood accommodated in the blood-vessels. Great importance was attached to the arterioles and capillaries in that respect, especially to changes in them, such as loss of elasticity or narrowing of lumen, either by thrombosis or arterio-sclerosis, when part of the cardiac force was spent without result. The significance of hypertension is not yet fixed; it may prove the existence of a fault in the heart or in the circulatory system. Exact analysis is needed. Hereditary influence and predisposition have been observed in 82 families with purely functional hypertension.

Prof. Volhard dealt with hypertension in connexion with kidney trouble and described two types of "high pressure" patients, one pale, the other red-faced, the difference being due to the condition of the vessels. The pale patient had general spasm of the circulatory system, the red-faced one a dilatation of the blood-vessels. Kidney troubles were thought to cause hypertension, but it appeared that in a number of cases kidney disease was the outcome of hypertension. It had been ascertained that in the pale type substances (peptones) producing arterial spasm circulated in the blood. In acute nephritis the kidney vessels were in a condition of spasm. In older persons the blood-vessels were less expansible, but had a greater capacity; the first condition increased blood pressure, the latter counteracted it, and the physiological diminution of cardiac force tended to keep the pressure down in older persons. It could be said that arterio-sclerosis was prevalent in persons whose hearts had remained young in spite of the changes in the blood-vessels due to age.

Prof. J. Pal stated that according to the generally accepted notion the level of blood pressure was proportionate—assuming constancy of blood volume and of cardiac efficiency—to the sum total of resistance offered in the arterioles and capillaries. The vessels in the intestinal organs especially played an important part in this connexion. Increased resistance (or narrowing of the lumen) in these vessels caused pressure in other regions, where less resistance was offered; the cerebral circulation was especially prone to passive congestion, accompanied at times by spasm in the cerebral arteries, if the congestion took place suddenly. Repeated attacks of increased blood pressure tended to produce a condition of

¹ See THE LANCET, March 31st, p. 668.

permanent high pressure, without manifestation of arterio-sclerosis visible at post-mortem examination. The vessels were hard to the touch during life, and offered great resistance to cardiac effort, but no anatomical lesion was discernible. Prof. Palex explained this condition by assuming an increased tonus of the cells; he called it "hypertonia," and thought it a disease sui generis, but often associated with and obscured by renal disease or arterio-sclerosis. It produced a hardening of the arteries, but the condition was amenable to treatment and might disappear if attacked in its early stages; the chronic form entailed disease of the kidney, of the pancreas, the brain, of the retina. Hypertonia was nowadays frequent, perhaps due to mental stress.

Other Circulatory Disorders.

Dr. Herxheimer (Wiesbaden) pointed out that diabetes was frequent in hypertonic patients; Prof. R. Schmidt (Prague) emphasised the rarity of carcinoma and tuberculosis in such cases. Dr. Lichtwitz (Altona) read a paper on severe trophic disturbances due to underfeeding, differing from cases observed during the war in that cedema was exceptional.

Prof. Knud Faber (Copenhagen) discussed the problem of blood-glycogen in diabetes. The percentage quantity in the normal blood, he said, was constant for each individual; in diabetic patients the organism had a tendency to maintain the same percentage proportion, which gave an important clue to therapeutic measures.

Prof. Schmidt had treated abnormal adiposity by injections of milk combined with thyroid gland by mouth, and had obtained excellent results—e.g., a loss of 2½ kg. in two days without any other dietetic measures. After attaining the desired drop in weight, the level could be maintained by prolonged thyroid treatment; exact differentiation of the cases suitable for this treatment was not yet possible.

The aetiology of hamatoporphyria was discussed by Dr. Weiss and Dr. P. Kammerer, who stated that it was not certain whether a nervous disturbance of metabolism or an infection of the liver was responsible. Prof. G. Singer (Vienna) demonstrated a case of scleroderma diffusa, which he treated with thyroid and ovarian extract, with excellent results. His observations, based on a number of cases, led him to explain this disease as a manifestation of hypothyroidism in the subcutaneous tissue, often associated with hypofunction of the germ-cells. The remedies were best given first by mouth, then by subcutaneous injections. Dr. Lichtenstern reported on his observations of 28 cases treated with transplantation of generative glands. In six cases the operation was performed for the purpose of counteracting the results of complete castration, done a long time ago. The results were most gratifying, the psychic and physical functions being restored. In the majority of favourable cases the results were lasting; in one patient eight years had already elapsed since the operation. In some cases, only temporary relief or improvement was obtained.

Pathology of Internal Secretion.

One afternoon was devoted entirely to demonstrations of the pathology of internal secretion. Prof. Pirquet showed children with premature development of sexual characters (3½ years old), a girl of 10 years, normally developed, who was born weighing only 790 g. (26 oz.), a girl with regional absence of the subcutaneous fat, a case of early scleroderma; all these patients showed abnormalities of the glands of internal secretion. Dr. B. Aschner showed females suffering from "physiological disturbances," as he termed them, of these glands. He included anaemia, chlorosis, adiposity, and amenorrhoea under this expression, and proved that by organotherapy and repeated venesections very good effects were obtained. A case demonstrated by Prof. W. Falta, showing a tumour of the hypophysis, was a real acromegalic giant, whilst Dr. Bauer discussed the mechanism of dwarfism, and demonstrated a number of dwarfs

whose condition was due not to inhibition of the thyroid function, but either to premature ossification of the epiphyseal site or to lack of growth stimulus. Most of these patients stopped growing after suffering from some infectious disease; one had suffered from a deforming arthritis since his seventh year, one had been attacked by an inflammation of the vertebral column. A woman, aged 41, had lost all her hair and nearly all subcutaneous fat within three months, her weight going down from 70 kg. to 40 kg. after an attack of influenza. A young man had also been attacked by influenza (? encephalitis lethargica), and had since that time developed marked gigantism. Prof. Falta showed a few cases of complete loss of hair on the body and nearly complete absence of the eyebrows and eyelashes, with very marked asthenia. Treatment with thyroid and ovarian tablets was most effective. Abnormalities of hair growth were demonstrated by Prof. Redlich, and Prof. J. Wagner-Jauregg showed dystrophic conditions, chiefly affecting the subcutaneous fat, caused by encephalitis.

On the last day of the congress devoted to scientific discussions over 80 speakers took part. No more than four minutes were allotted to each speaker, with the exception of introducers of a subject. Dr. Königsfeld pointed out the importance of the skin as a means of protection against disease, and to the production of protective substances against carcinoma by the actinic rays. Dr. Herrmann (Carlsbad) had found that by elevating the abdomen and legs it is possible to relieve the excruciating pain of gall-stone colic. Profs. Hofbauer and Wenckebach obtained similar results by turning the patient quickly on his right side, and thus "squeezing out" his liver by means of the diaphragm. Dr. Rostocki (Dresden) had observed a marked frequency of pulmonary cancer amongst miners; in Vienna, Hamburg, and Königsberg, bronchial cancer, formerly rare, is now found fairly often. Dr. Götze (Frankfort) stated that phrenicotomy is often most effectual in pulmonary phthisis, and much more advisable, because of its simplicity, than the repeated production of artificial pneumothorax. Treatment of pulmonary tuberculosis with tuberculin by the percutaneous method was strongly opposed by many experts.

An exhibition of apparatus and drugs was held during the congress, all the latest developments of electro-therapeutic, actinic, and optical work being on view.

CZECHO-SLOVAKIA.

(FROM OUR OWN CORRESPONDENT.)

The Peace of the Red Cross.

ON March 31st, "White Saturday," the "Peace of the Red Cross" was solemnly promulgated in a special session of Parliament. This Easter-time ceremony has now been held for three successive years; the idea was conceived by Dr. Alice G. Masaryk, daughter of the President of the Republic, who is the president of the Czecho-Slovak Red Cross; at Easter this organisation makes a great and increasingly successful effort to stop all political quarrels and discussion and to interest the public in social and public health questions, in a manner recalling the mediæval Truce of God. This year's response from the daily press and the public was remarkable; the Easter Sunday papers contained articles on public health and social topics written by prominent politicians, by party leaders, by highly-placed State officials, and by scientific authorities. This part of the Red Cross campaign was purely educational, no appeal for money being made. A "drive" for funds will follow in May, in cooperation with the Tuberculosis League, the Venereal Diseases Society, and the Abstinence League. At a recent meeting of the League of Red Cross Societies the Czecho-Slovak delegates proposed an extension of the idea of a Peace of the Red Cross to all States represented in the League.

Social Insurance Legislation.

The Social Insurance Bill dealing with sickness, invalidity, and old age insurance has been introduced into Parliament to be considered during the summer session. It represents one of the most difficult problems which have confronted the present Coalition Government. The preliminary studies undertaken by the Ministry of Social Welfare occupied more than a year. A permanent committee composed of political and professional workers drafted the Bill; the Parliamentary procedure will probably take at least seven months, but it is hoped to put the Bill into effect on Jan. 1st, 1924. The terms of the Bill are very complicated, comprising over 300 sections. The insurance will cover not only the working class but also persons of independent means up to a certain figure. A voluminous report has been prepared in connexion with the measure, and a special memorandum on the statistical aspect of the problem is being printed. The insurance will include 3,200,000 workpeople, and will involve a yearly expenditure of 1½ milliards of Czecho-Slovak crowns. The main lines of the Bill were drafted by Dr. L. Winter, who was the first Minister of Social Welfare in the independent Republic.

Treatment of Alcoholism.

The Czecho-Slovak Abstinence Society is about to open a home for alcoholics at Tuchlov, near Teplice. Assisted by the Ministry of Health, the society bought for this purpose a small castle set in attractive surroundings and requiring no adaptation. There is room for 50 inmates; treatment will be both medical and educational, and although residence will be compulsory, everything possible will be done to avoid the creation of a prison atmosphere.

A New Medical Curriculum.

The medical press is discussing the suggested reforms in the medical curriculum which was drafted by Prof. Jaroslav Hlava, the doyen of the medical profession in Czecho-Slovakia. Prof. Hlava detailed his plan at the first congress of Czecho-Slovak University teachers, held in May, 1922. It was then decided that a special committee should be appointed to work out definite plans for reform on the basis of Prof. Hlava's scheme. The suggested reform would not alter the time—five years—now required for completion of the medical course, but a compulsory "practical year" for all doctors of medicine will be introduced, and will automatically prolong the study of medicine by another year. Prof. Hlava prescribes for the first four semesters the theoretical study of basic medical sciences, and for the fifth semester preliminary instruction in internal and external medicine. The remainder of the curriculum he proposes to devote to clinical studies. The greatest innovation, however, is Prof. Hlava's scheme for examinations, which would be in groups, the first group to be taken before Christmas in the fifth semester, the second to be taken at the end of the eighth semester, the third group to be begun at the end of the tenth and finished in the eleventh semester. The successful candidate would then have the right to use the title of physician. The degree of doctor of medicine would only be obtainable after presentation of a scientific thesis, according to the French system. This last provision is the only one to which any considerable exception is taken by medical men.

A COUNTRY HOUSE HEALTH RESORT.

On April 27th the new sanatorium at Rendlesham Hall, Wickham Market, Suffolk, was inaugurated by a luncheon at which were present many distinguished medical and lay visitors including Mr. W. Bingham, chairman of the undertaking; Sir Alfred T. Davies, of the Board of Education; Mr. F. W. Raffety, L.C.C.; Rev. E. J. Barston, chairman of the London Congregational Union; Rev. J. A. Sharp, ex-chairman

of the Wesleyan Conference; and Mr. Tom Wing. The following representatives of the medical profession were also present: Sir Humphry Rolleston (President of the Royal College of Physicians of London), Sir Sydney Russell-Wells, M.P., Lady Barrett, Dr. Jane Walker, Sir Robert Armstrong-Jones, Sir William Willcox, Sir James Purves-Stewart, Mr. McAdam Eccles, Dr. J. Burnett Rae, Dr. Basil Price, Mr. H. L. Sackett, Mr. W. E. M. Mitchell, and the representative of THE LANCET.

The objects of the sanatorium are to treat cases of alcoholism and drug addiction under conditions approximating to those obtained in an ordinary health resort. Experience has taught that there are a large number of people who are desirous of treatment so long as they can have the treatment in a home-like environment, and here at Rendlesham Hall the work that has been carried on for nearly 20 years at Beckenham Park will be continued under improved conditions, the increase of work necessitating the expansion of premises. The lease at Beckenham has 3½ years to run, and the work will be conducted at both institutions for that period.

At the luncheon Mr. Bingham, the chairman, spoke of the increasing pressure of cases and the need for their individual and sympathetic care in a suitable environment, such as Rendlesham Hall. Sir Sydney Russell-Wells told the story of Rendlesham Hall, a mansion with a curious social interest. Peter Thellusson, a banker, after acquiring great wealth, died in 1797 and his will directed that the major part of his fortune should accumulate during three generations and that the sum thus accumulated, estimated at several millions, should be used to purchase an estate for the then eldest lineal descendants. But the will, as everyone knows, was set aside by the courts, and in 1859 it was decided that the property should pass to the late Lord Rendlesham, the oldest male descendant of the banker's eldest son. The house, he said, had arisen on the very site where Thellusson had woven his ambitious schemes and had become a sanatorium—for the banker's dream of social conquest for his descendants by the power of accumulated wealth there would be substituted the greater work of healing the afflicted.

The guests at the luncheon inspected the house and grounds. The original estate consisted of some 5000 acres with 277 acres of park land. It is the park land which has now been purchased with the freehold of the Hall, which is fitted up as a large and luxurious country home. No less than 45 bedrooms are already prepared for occupation and 10 more will shortly be available. Here, in a beautifully wooded country, the windows face noble clumps of trees and smooth lawns, and the aim of the management is to secure for patients during their sojourn the amenities of a country mansion managed on the lines of a first-class hotel. The treatment is voluntary, patients being able to come and go as they like, but a six weeks' course of treatment is recommended. Luxurious carpets are everywhere in evidence, those for the stairs and corridors alone cost some £1250; the rooms are lofty, the drawing-rooms lead into a winter garden and conservatory, are elegantly furnished, and face the beautiful prospects; there are a fine billiard-room, smoking-room, and every facility for indoor recreation, while outdoors there is a small private golf course, as well as tennis courts and croquet lawns. In addition, there are 5½ acres of walled-in garden. At present there is a central heating instalment with wood fires for the bedrooms. Electricity is used for lighting, and later this agent will be utilised for radiators in the bedrooms. The water-supply is pure and abundant. The nearest village is 1½ miles from the Hall.

The treatment will be carried out under the direct management of Dr. W. Asten, who is a barrister as well as a medical man, while Dr. Francis Hare, the medical superintendent at Beckenham, will be the consulting physician. The charges are from 7 guineas to 15 guineas a week.

Correspondence.

"Audi alteram partem."

ANAPHYLAXIS AND THE ADMINISTRATION OF SERUM.

To the Editor of THE LANCET.

SIR,—I have read with great interest Dr. Poul Iversen's article on this subject in THE LANCET of April 7th. Nowadays it is the fashion to ridicule the "bugbear of anaphylaxis"; rare though it may be, the danger is still a real one, and when anaphylactic shock does happen it is such a dreadful calamity that no avoidable risks should be run. It is small consolation to a grieving mother to point to statistics, and to demonstrate how exceedingly unfortunate it is that such an unlikely accident should have happened to her particular child.

My own experience is as follows. I first began to use serum on a large scale in 1908 for the treatment of bacillary dysentery in Egypt and among the Mecca pilgrims at El Tor. From 1909 to 1914 I was engaged in the preparation of this serum for the Service Sanitaire Maritime et Quarantenaire d'Egypte, as well as in its administration. During part of the late war I was in charge of the dysentery department of a large general hospital in Egypt, and I have had occasion to treat many cases of bacillary dysentery during the past two years. Consequently I am in the position to record my impressions from the administration of many thousands of injections (though, unfortunately, I cannot give exact figures) of serum prepared by myself, the Lister Institute, Burroughs Wellcome and Co., the Institut Pasteur, the Istituto Sieroterapico of Milan, the Serum Institute of Berne, the Institut für Infektionskrankheiten of Berlin, and others; and I affirm unhesitatingly that I have never given an intravenous injection of serum without experiencing feelings of the most acute apprehension. It is true that I have not yet experienced a fatal result in my own practice from the administration of serum by any route, but I can recall many instances in which a fatality was, to all appearances, only averted by the narrowest possible margin; in fact, I think several patients would have died but for my invariable rule of having stimulants always at hand, and a syringe ready loaded with 10 minims of adrenalin and 1/75 gr. of atropine in every case of intravenous injection and in all cases of intramuscular injection where I had any reason to suspect sensitisation. On the other hand, a death from typical anaphylactic shock actually occurred in 1918 in the practice of one of my colleagues of a man who had been sensitised by the injection of no more than 0.75 c.cm. of serum contained in two doses of sensitised dysentery vaccine; and the first two horses whom I started to immunise in 1909, by means of intramuscular followed by intravenous injections of dysentery vaccine, also died with classical symptoms of anaphylactic shock. I subsequently abandoned intravenous injection and lost no more.

I quite agree with Dr. Iversen that different batches of serum differ widely in their toxicity, and I have found that the longer the serum has been kept—especially in hot countries—the greater has been its toxicity. Further, the addition of any antiseptic appears to enhance this property. On the other hand, all my cases exhibiting untoward effects have been adults; perhaps I have been exceptionally fortunate, but I do not remember ever to have had a moment's anxiety in the case of a child, although I have often given 40 c.cm. in a single dose to infants of less than a year old.

Further, Dr. Iversen does not appear to differentiate sufficiently clearly between the different types of reaction which may occur. In my experience these have been:—

1. Definite anaphylactic shock, which is seen far more commonly after intravenous than after intramuscular

injection. This takes place either during or shortly after the injection, and is characterised by sudden air-hunger, coughing, tingling in the hands and feet, often vomiting, and syncope or convulsions. *There is no urticaria*, and none of the ordinary symptoms of serum sickness, such as fever, a rash or joint pains. This condition is always dangerous, and often fatal.

2. A rigor, which in my experience has always begun with curious precision exactly 20 minutes after the commencement of an intravenous injection; it is followed by hyperpyrexia, and may occur whether the serum be injected undiluted—e.g., after 120 c.cm.—or diluted with saline or gum acacia saline. It is alarming in appearance, but not dangerous, and in fact may be of good prognostic import.

3. A precipitate serum reaction, which may show itself within an hour of injection. This is characterised by an intense urticaria, a generalised erythematous rash, vomiting and collapse. In the case of "horse-asthmatics," who are particularly liable to this form of reaction after an intramuscular injection, the condition may be dangerous from the violent asthma which may accompany it. If the injection be given intravenously, the condition described in section 1 may occur; I have still a vivid recollection of one such case in 1918, who was admitted to my wards apparently moribund after spending nearly 24 hours in an isolated latrine before being discovered. An intravenous injection of gum acacia saline was first given, and then serum was very cautiously added; he could not have received more than a c.cm. or so when violent coughing and air-hunger, followed by collapse, supervened. For more than an hour I thought he was dead, but he rallied after adrenalin and atropine, oxygen under pressure, and artificial respiration. Subsequently, he received several large intramuscular injections of serum, and made a complete recovery. A curious sequel to this and one other similar case was that neither man had a recurrence of asthma as long as I was able to observe them; possibly they had been desensitised.

4. The ordinary serum reaction, which usually occurs from five to ten days after the injection of serum intramuscularly. This is so well recognised that no description of it is needed, and in my experience at least it is never dangerous. It is particularly prone to be severe after old serum has been given, but is no contra-indication to further injections of serum even when present—thus differing from true anaphylactic shock.

Again, Dr. Iversen appears to deny the value of desensitisation; this seems to me to be a most dangerous doctrine to preach. Subsequently to 1917 nearly all my patients have received previous injections of serum for wounds, diphtheria, dysentery, or in sensitised dysentery vaccine; the fatal case above recorded, and all my own cases who nearly died, had not been desensitised, whereas I cannot but attribute my immunity from anxiety in other cases to the meticulous care with which desensitisation has been carried out as a routine practice.

In conclusion, in my experience the intramuscular injection of serum should remain the route of choice as being almost as efficacious as, and far safer than, the intravenous. It is obvious that desperate diseases require desperate remedies; in such cases the risks incidental to the intravenous route must be taken, although even then I shall continue to desensitise by the injection intravenously of four doses of $\frac{1}{2}$ to 1 c.cm. at intervals of 15 minutes.

I am, Sir, yours faithfully,

J. GRAHAM WILLMORE.

Chelsfield, Kent, April 30th, 1923.

INSURANCE PRACTICE.

To the Editor of THE LANCET.

SIR,—One sentence in the letter from "Rusticus" in THE LANCET of April 21st, p. 819, hits the right nail on the head as far as the country panel practitioner is concerned.

"It was easy to see that the regulations were framed for the town practitioner, that some of them were next to impossible in the country."

I may be wrong, but I venture to think that when the thousand and one rules and regulations of the National Insurance were framed, no pukka representative of the country panel practitioner had a say in it. Now many of these rules have been cancelled, augmented, diminished to such an extent that what might have been harmony is cacophony.

The professional work of the real country practitioner on the panel is quite different from that of the town practitioner. Many of the diseases may be the same, but the work entailed to treat and visit these cases, to give certificates, and so on is very different from that of a practitioner who has a large panel within a half-mile radius.

"Rusticus" says, "Anyhow, thank God, I am a country practitioner!" I agree with him and clasp his hand over it. But when new regulations and rules materialise, if they ever do, we country panel practitioners must have a bigger say than we have had heretofore.

I am, Sir, yours faithfully,

R. T. RICHMOND.

Seascale, Cumberland, April 23rd, 1923.

TUBERCULIN IN PRIVATE PRACTICE.

To the Editor of THE LANCET.

SIR,—In a paper published in THE LANCET of March 1st, 1913, I gave a Summary of 340 Cases of Pulmonary Tuberculosis, treated during 25 Years Practice, treated with and without tuberculin. In tabular form the results were as follow:—

In 100 Cases Treated without Tuberculin.

Arrest of disease.	Improvement.	Loss of weight and febrile conditions continuing.	Advanced stage.	Continuation of treatment in sanatoriums and elsewhere.	Deaths.
23	29	21	7	12	8
In 100 Cases Treated with New Tuberculin, T.R.					
25	30	21	6	13	5

From August 1st, 1911, to August 1st, 1921, I treated 200 cases of pulmonary tuberculosis by serial tuberculin administration. The dilutions used were, first, six dilutions of P.T.O.; next, four dilutions of P.T.; and next, two dilutions of Koch's old tuberculin, albumose-free. Injections were given at first twice weekly, then once a week, and afterwards once a fortnight. In the absence of reaction each successive dose was double the preceding; in the event of a rise of temperature the previous dose was repeated. Put in tabular form these further results are as follow:—

In 200 Cases (two untraced) Treated with P.T.O., P.T., T. (Albumose-free) Sequence.

54	80	17	5	33	9
or divided by two to compare with the percentages of the former series—					
27	40	8.5	2.5	16.5	4.5

Of the deaths at least two out of the nine were due to other causes than pulmonary tuberculosis. In two cases efforts to trace, hitherto unsuccessful, are being continued.—I am, Sir, yours faithfully,

Southport, April 17th, 1923. J. C. VOIGT, M.D. Edin.

SPASMODIC DYSMENORRHOEA.

To the Editor of THE LANCET.

SIR,—In Dr. G. Blacker's contribution on the treatment of spasmodic dysmenorrhœa, in your issue of April 21st, there is not one word about the neurotic basis of this symptom. Can it be that gynaecologists have not yet realised that spasmodic dysmenorrhœa is a manifestation of anxiety hysteria? The exact causation is not uncertain, as Dr. Blacker states; it is always hysterical and other hysterical symptoms nearly always co-exist. Even in the old days this condition was frequently cured by hypnosis and now it can always be cured by psychoanalysis. I have even had patients under psycho-analytical treatment who have told me that I had

cured this symptom, although previously I never knew that they suffered from it. Every case of spasmodic dysmenorrhœa is one of anxiety hysteria curable by psychological methods, and those patients who are cured by operation are cured by suggestion of a very potent character. It would not be far wrong to say that the converse is also true—viz., that every case of anxiety hysteria suffers from spasmodic dysmenorrhœa.

I am, Sir, yours faithfully,

W. H. B. STODDART.

Cavendish-square, W., April 24th, 1923.

PRACTICE ABROAD.

To the Editor of THE LANCET.

SIR,—The reference in your issue of April 7th to our now extinct Continental Anglo-American Medical Society (which personally I greatly regret) prompts me to call the attention of your readers to the fact that within the next few years there will be a number of vacancies for English practitioners in France and sundry other countries. I have remarked that as English doctors practising abroad die out their places are not taken by other Englishmen, no doubt for the simple reason that since the tightening up of the conditions of acquiring the right to practise in France no Englishmen holding the French qualification are available—a fact much to be deplored in the interests of the travelling British, and I may add American, public, comparatively few of whom are familiar with the language.

Given a knowledge of the French language—which can easily be acquired when young by spending a few terms in a French school or even by passing the holidays in a French family—there is no particular difficulty in acquiring the right to practise. The one essential thing is to pass the French *baccalauréat*, but this I presume would be accepted by English university authorities as the equivalent of the matriculation examination. It is necessary to pass *all* the examinations one by one, but if this be done concurrently with the English curriculum no particular difficulty need be experienced, at most a few weeks' coaching by a French tutor.

Life in French watering places and health resorts is distinctly agreeable, and practice there offers many advantages. Parents who contemplate a medical career for their sons might well consider the practicability of giving it a French twist.

I am, Sir, yours faithfully,

Algiers, April 24th, 1923.

ALFRED S. GUBB, M.D.

OPERATIONS ON TONSILS AND ADENOIDS: A POSSIBLE DANGER.

To the Editor of THE LANCET.

SIR.—The escape into the mouth of extracted teeth or other foreign bodies is well known to be an accident against which precautions must be taken in dental operations, but I do not find that much attention has been paid to the existence of a similar danger during other operations involving the use of instruments within the mouth, particularly for the removal of tonsils and adenoids in young children. On making the usual inspection beforehand one often finds loose milk-teeth, and hitherto I have, as I believe is customary, usually been content with noting them for avoidance in inserting the gag. The presence of such a tooth is, however, inconvenient, and there is always risk that in the course of the operation it may be dislodged; it is then apt to be lost in the blood, and there will be some concern until it is recovered, for dropping into the throat and inhalation into the air-tube (as in dental cases) is by no means unlikely. Some years ago Sir St. Clair Thomson recorded fully¹ a case, originally a dental one, in which (after consulta-

¹ Practitioner, August, 1918.

tion with Sir James Dundas-Grant and Mr. E. D. D. Davis) he removed, by lower bronchoscopy, a tooth impacted in a secondary bronchus. Two attempts by upper bronchoscopy had previously been made. References to other cases are given and an interesting medico-legal question raised as to the responsibilities of the operator and anaesthetist respectively.

I would, therefore, advise that such teeth should be removed *before the operation is begun*, the need for so doing being explained to the parents, who may otherwise suppose there has been carelessness or clumsiness.

I am, Sir, yours faithfully,

London, N.W., April 20th, 1923.

J. D. MORTIMER.

TUBERCULOSIS OF SACRO-ILIAC JOINT.

To the Editor of THE LANCET.

SIR,—After reading Mr. H. C. W. Nuttall's interesting paper in THE LANCET of April 28th, it becomes evident that he wrote it prior to the publication of Dr. A. Rollier's "Heliotherapy," which you review on another page of the same issue. How else could he make the statement that "the rarity of the disease precludes the possibility of impressive statistics"? In Appendix III. of that book, on pages iv. and vi., are statistics of no less than 83 cases of this condition which Dr. Rollier has personally treated at Leysin.

As Mr. Nuttall recommends still more radical methods of treatment than have been used in the past, it may be of interest to your readers to glance at the actual details of Dr. Rollier's figures, which for the sake of brevity I have combined in one table.

Cases of Sacro-Iliac Disease treated by Heliotherapy.

—	Total.	Healed.	Improved.	Stationary.	Died.
Without sinuses ..	40	36	3	—	1 (r)
With sinuses ..	43	21	9	8	5 (a)
—	83	57	12	8	6

(r) = affected with renal tuberculosis.

(a) = affected with amyloid degeneration on arrival.

I am, Sir, yours faithfully,

PAUL BERNARD ROTH.

Harley-street, W., April 28th, 1923.

SYPHILIS OF THE MEDIASTINUM.

To the Editor of THE LANCET.

SIR.—If it is not too late to return to the subject, I would thank Dr. Renton for his kindly rejoinder to my letter in THE LANCET of April 14th. I fully realise that he has authority on his side in saying that there is gross displacement of the heart in cases of mediastinal sarcoma, but authority is, I believe, in this case wrong. Lest I had deceived myself, I asked my house physician, Dr. J. Whitby, to look up the post-mortem records of a few recent cases of mediastinal sarcoma at the Victoria Park Chest Hospital. He has done so, with the result that in no case was the heart displaced to any appreciable extent, and if displaced at all, was slightly towards the side of the main mass of the growth. In two cases which I have seen recently in private, there was also no cardiac displacement. Therefore in six cases, five of which had histological confirmation, seen within little more than 12 months, this sign was definitely negative.

As I wrote before, the question of the frequency of the occurrence of syphilitic lesions in the lungs and mediastinum is a controversial one, and is, moreover, one of such great importance that any published cases of this condition require incontrovertible proof.

I am, Sir, yours faithfully,

Harley-street, W., April 27th, 1923.

F. G. CHANDLER.

Public Health Services.

THE RURAL PRACTITIONER'S NEEDS.

"Rusticus" has aroused an echo from another country panel practitioner. Dr. R. T. Richmond reminds us in his letter in the present issue that the work of the rural practitioner is in many respects different from that of his colleague in the towns. We may frankly add that it is often more difficult. In the country the proportion of visits to consultations at the doctor's surgery is known to be greater than in urban practice. The nature of the work is more arduous and the responsibility of the practitioner is greater, because the hospital and its staff are not so easily accessible. Nevertheless, the agricultural worker is an important asset to the State, and it is no ignoble task to take part in arresting the steady stream of country-bred labourers to the industrial centres, and in making the conditions which must tend to reverse the direction of the stream. The countryside is the proper nursery of an A1 population, and for this reason the status of the rural practitioner is a matter which the State cannot afford to ignore. It is when we come to consider the suggested remedies that the real difficulties are encountered. In a uniform national scheme, administered from a central office, it is not easy to see how a fair discrimination can be secured. Dr. J. P. Williams Freeman, the champion of the country practitioner, is in favour of an "extra grant." But extra grants were condemned by the Geddes Committee, and in the present financial stress the Treasury cannot be expected to make them. Then the money must come from the central pool, and the problem becomes one of redistribution. The Distribution Committee might assess the rural areas on a more liberal basis; but this would be difficult so long as the Insurance Committee area is the unit and practitioners in that area are perforce treated alike. Any such scheme would naturally involve a reduction in the proportion of the urban areas. If individual practices are considered, then an elaboration of the mileage scheme would probably be the best solution. But the problem is bristling with difficulties.

THE WASSERMANN TEST AND THE RANGE OF MEDICAL SERVICE UNDER THE INSURANCE ACTS.

A hearing recently took place at Birmingham into the question whether the taking of venous blood as a preliminary to the Wassermann test for syphilis came within the range of medical service under Article 38 of the National Health Insurance Regulations. There was no dispute as to the facts. An anonymous female patient suffering from tertiary syphilis consulted an insurance doctor, and, knowing of his experience in venereal disease, asked him to take the necessary steps for the performance of a Wassermann test. The patient was an insured person on his list. She insisted on the non-disclosure of her name, to the extent of preferring to pay the specialist's fee of 5 guineas, but there was no other unusual feature of the case. The local medical committee came to the conclusion that the venepuncture was outside the range of medical service under the Act, on the ground that it was the proper work of a specialist and not that of a general practitioner of ordinary professional competence and skill; and the Insurance Committee agreed with the decision. The Court of Referees, which consisted of a barrister-at-law and two medical men, decided that intravenous puncture for obtaining blood for analysis was not to be regarded as of greater difficulty, say, than the passage of a catheter in the male. A practitioner not possessing the necessary aptitude could acquire it without difficulty. In places well provided with facilities for the treatment of venereal disease, a patient might admittedly obtain more skill at them than from his insurance doctor in this particular manœuvre, but to remove from the range of medical

service under the Acts services to be rendered to a patient so placed would be to whittle away the duties of the general practitioner to a degree inimical, not only to the policy of the Acts, but also to the best interests of the medical profession. Possible risk of failure was not a matter, in the Court's view, which should weigh against the general conclusion. That risk was common to many a service which insurance doctors are admittedly under obligation to perform should the patient require it.

MEDICAL SERVICE OF THE INSURANCE ACTS: JOINT STANDING COMMITTEE.

At the Plenary Conference of bodies interested in insurance medical service, held at the Guildhall, London, on Jan. 30th and 31st last, a Standing Committee was appointed to consider the various suggestions made during the Conference. This committee, consisting of six representatives each of approved societies and insurance practitioners, four of insurance committees, and two of pharmacists, has now held three meetings. At the first meeting on April 13th Dr. H. B. Brackenbury was unanimously elected chairman, and Mr. W. Gill Hodgson, clerk to the Liverpool Insurance Committee (not being a member of the Standing Committee), as secretary. The first meeting dealt with matters relating to the efficiency of service, foremost the question of surgery and waiting-room accommodation, the following resolution being passed unanimously:—

That, in order to carry out paragraph 8 (4) of Schedule I. of the Medical Benefit Regulations, where an insurance committee has received a complaint from any quarter, or from other cause has reason to question whether adequate surgery and waiting-room accommodation is provided either in specific cases or generally in its areas, it should, jointly with the Panel Committee, investigate the matter, and if the accommodation in any case is not found satisfactory, or is not made satisfactory, should refer the case to the Medical Service Subcommittee.

Sir William Glyn-Jones undertook to bring this decision before the Federated Associations of Insurance Committees, and Dr. Brackenbury to place it before the Panel Committees via the Insurance Acts Committee. At the second meeting the consideration of efficiency of service was resumed, and the meeting to be held to-day (May 4th) is to deal with the interpretation of the range of medical service to be given to insured persons.

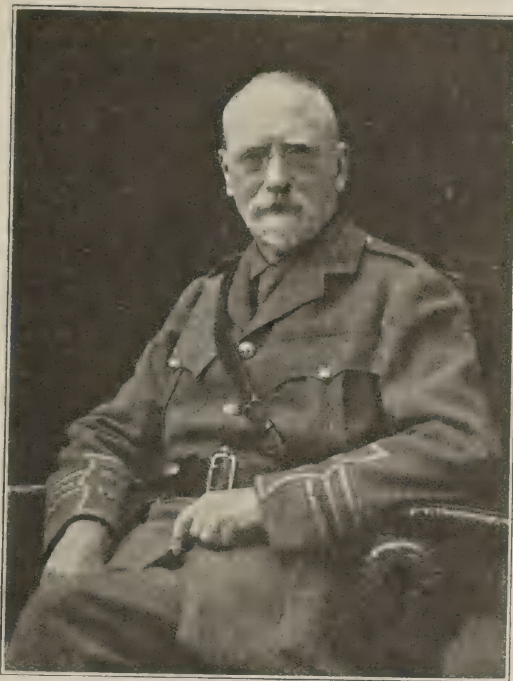
THE LATE DR. J. K. STEWART.—Dr. John Kilpatrick Stewart, who died suddenly on April 15th, was a native of Ballymena, and received his early education at the Academy in that town. He graduated M.B., B.Ch. in 1915, with honours, at the University of Belfast and almost immediately afterwards joined the R.A.M.C., and was severely wounded while serving in France. After demobilisation he was appointed medical officer to the Randalstown District Dispensary, where he won the affection and regard of all classes of the community. He leaves a widow and three small children.

WORTHING HOSPITAL.—Lord Athlone visited Worthing on April 24th and opened the new wing at this hospital which has been erected at a cost of £7918. The scheme originated in 1919, the object being to establish a maternity ward, a paying patients' ward, and surgical wards as a war memorial. In declaring the new wing open, the Earl of Athlone said the maternity wards were meeting a great need. As to accommodation for paying patients, a large number of people could not afford to pay considerable sums to go into nursing homes during sickness, and many preferred to have a little more comfort than they would obtain in the general wards. There was a great need for these wards, and he hoped very shortly to be able to state that he had been able to start this kind of nursing home in connexion with the Middlesex Hospital. He expressed his pleasure in coming to visit the Worthing Hospital, which is a very old foundation. It commenced in two rooms as a dispensary in 1829, and removed to Chapel-road in 1844. The first portion of the present building was erected in 1881, and there were additions in 1887 and 1889, and in 1901 hospital was substituted for infirmary. The out-patients' wards were established in 1912 as a memorial to King Edward.

Obituary.

SIR SHIRLEY F. MURPHY, K.B.E., F.R.C.S. ENG.,
FIRST MEDICAL OFFICER OF HEALTH, COUNTY OF LONDON.

By the death of Sir Shirley Murphy, which took place on April 27th, at his home at Regent's Park, the country has lost a great exponent of the science of hygiene and epidemiology, and a public health officer whose 40 years of labour have left their mark in the greater well-being and health of the whole community, above all in London. Although he had reached the age of 74, he had, until two or three years ago, been actively and strenuously employed with the army duties which he had sought at once on the outbreak of the war, and had continued, with great public spirit and practically without intermission, until after the Armistice. It was only since then that signs of



SIR SHIRLEY MURPHY.

failing health had been conspicuous, and he had been crippled by severe attacks of neuralgia. He had continued, notwithstanding, to write and take part in affairs, as far as his health allowed, until a few days before his death.

Shirley Forster Murphy was born on May 21st, 1848. His parents were then living in London, and he was sent to University College School in Gower-street. Thence he went to Guy's Hospital, and qualified M.R.C.S. and L.S.A. in 1870. After brief tenure of a hospital appointment at Manchester he was advised, on the ground of suspected tuberculosis, to go abroad, and took two years of medical service in the East under the P. and O. Company. Returning to London, he was appointed an assistant medical officer at the Metropolitan Asylums Board hospital at Homerton, which at that period—the secondary wave of the great pandemic—was often congested with small-pox cases as well as with typhoid and other infectious diseases. Experience there led Murphy, in 1875, to the appointment of resident medical officer at the London Fever Hospital, then a great school for infectious fevers, with the recent traditions of Murchison and Sir W. Jenner. He remained resident medical officer, under Broadbent and Cayley as visiting physicians, until 1878. By that time, having become more and more

drawn to epidemiological and preventive questions—the London typhoid of the period, it may be remembered, was still a perpetual reminder to those who treated it of the effects of insanitary environment and the need for better hygiene in the metropolis—he adopted public medicine as a career and obtained the appointment of medical officer of health for St. Pancras, vacated by his friend Dr. Thomas Stevenson. The post offered an enormous experience and field for work, but the conditions under which improvements could be produced or disease prevented were almost heart-breaking. A few of the London vestries at that time gave moderate encouragement to the sanitary reformer, but none was to be found in this instance. A time came when reactionary opposition became so pronounced that Murphy decided that his energies should no longer be destroyed by it. Resigning from St. Pancras in 1884, he took the bold step of setting up in Queen Anne-street as a consultant in public health, with the aid of one or two minor official appointments, and for five strenuous years was busy with every branch of his subject. Since 1876 he had been secretary of the Epidemiological Society—an office which he held till 1888—while in 1879 he had become secretary of the Society of Medical Officers of Health. He worked these societies hard, developed them, produced subjects for discussion, and laid everyone under tribute on the epidemiological questions of the day—milk infection, small-pox transmission, vaccination evidence, periodicity of disease, epidemic diarrhoea, and many other matters. On these he frequently contributed original observations, while he was able to secure or interpret the views of such men as Buchanan, Ballard, Power, Longstaff, or, indeed, of almost any of the leading public health experts of that time, medical and non-medical, who freely took him into their confidence. He knew their work and enlisted their support in book-making, notably in the preparation of the manual, "Our Homes, and How to Make Them Healthy," published in 1884, to which many distinguished authors contributed, as was the case some years afterwards in the large treatise on "Hygiene" edited by Stevenson and Murphy. By foreign travel, which he continued in later life, he extended his circle of collaborators and made enduring friendships with foreign public health workers. He wrote much for different periodicals and began a long association with THE LANCET by contributions on public health policy and developments, which have been highly prized and by which this journal has greatly benefited. His zeal, special knowledge, and wide outlook became more and more appreciated. He had married, in 1880, Ellen Theodora, daughter of the late Henry S. King, J.P., and in this period, as throughout his whole life, his wife's keen intellect, industry, and sympathy were given him fully and unsparingly to aid his work. He had the advantage also at this time of special employment for Government departments, particularly for the Local Government Board and its medical officers—an association which lasted throughout his subsequent official career—while he added to his experience of small-pox and vaccination at the Animal Vaccine Establishment at Lamb's Conduit-street, where he was responsible for the preparation of calf lymph.

When the London County Council came into being, Murphy, with these qualifications, added to an intimate knowledge of London, its needs, its complicated public health organisation, and its many social and philanthropic agencies, had strong claims to the post of its first medical officer. This appointment, strongly contested as it was, he secured in 1889, and thereafter held for 22 years. It was one with many difficulties as well as opportunities—difficulties which were not lessened by the strong political bias, first on one side and then on the other, which characterised the assembly to which he was responsible, and the opposing political forces that operated in the other municipal bodies with which coöperation was necessary from the public health point of view. In the County of London the direct administration for which the medical officer of health was responsible under

statute, though more restricted in scope than in the case of large cities elsewhere, was of exceptional importance in view of the size of the metropolis and the special interests involved. But still more important was the surveillance of the public health work of other bodies, the new borough councils, and the various ad hoc administrations which characterise London municipal government—work of coördination, consultation, standardising, or action as complainant, referee or as a court of appeal—to which was added the duty of representing the position and health needs of London as a whole to the central government departments or to Parliament. Murphy developed both these functions, and established them on a sound and durable footing. In matters directly under his authority, such as the scheduling of unhealthy areas, the regulation of cowsheds, common lodging-houses, seamen's quarters, offensive businesses, and the like, he succeeded in instituting a highly efficient inspection service and office methods. A night visit with Murphy to London common lodging-houses, night shelters, and the haunts of vagrants was an education in itself, and an illustration of his close personal knowledge of this aspect of his work. On the other side, he gave himself freely to the mass of advisory and committee work, conferences, Parliamentary inquiries, bill-drafting, by-law and regulation making—and all the combats and discussion entailed therewith—which during his term of office have settled so much of the practice of public hygiene as it exists now in London.

Underlying all this work was a persistent effort to visualise London requirements and the condition of the London population as a whole. The epidemiological studies which he had begun early were never dropped from stress of official duties; they were enlarged on every opportunity with the wealth of material which was now at his disposal. That they were effective was due primarily to Murphy's own assiduity and the labours of Dr. Hamer, Dr. Young, and others of his highly capable staff, and also in no small degree to the position which Murphy came to occupy in the public health service. Men like Power at the Local Government Board, Whitelegge at the Home Office, and later Newman at the Board of Education; epidemiologists such as Theodore Thomson, Bulstrode, Chalmers, Reece, Buchanan, Greenwood—the list could be extended indefinitely—were always ready, in their esteem and friendship for Murphy, and for reciprocal benefit, to respond to his inquiries and undertake the studies he desired. For few great populations have the tendencies of diseases and variation of diseases, infectious and non-infectious, and the mass causes which have influenced them, been worked out so fully as in the reports which Murphy originated and his successor, Sir W. Hamer, has since continued. The consideration given to these matters was of the widest; social changes, migration of population, peculiarities of individual diseases in the matters of their recurrence and natural history, were reviewed and in proportion. These studies aided Murphy greatly in the efforts which he always made to look ahead and forecast, not merely from the scientific interest of foretelling epidemics, but from the practical point of view of being prepared for them. But in the whole series of reports there was no undue straining to claim credit for recent preventive measures, however promising; no propaganda; and no play to the political gallery.

We must be content with this reference to the greatest part of his life work. The health of London and his own official writings are the best evidence of its value. They had received recognition during his tenure of office by the knighthood conferred on him in 1904—an occasion of a striking demonstration of the regard in which he was held by the Society of Medical Officers of Health, over which he presided in 1891 and 1892, and again in its jubilee year 1905. They were also recognised by the grant of the honorary Fellowship of the Royal College of Surgeons, and the Bissett Hawkins medal of the Royal College of Physi-

cians in 1908. On leaving office in 1911—a retirement which he had himself been willing to accelerate by a year or two in order to allow of the fusion of the public health work and education medical services of the County Council—Murphy continued his epidemiological studies and gave further services to various public health organisations with which he had always been in touch, particularly in the Epidemiological Society, of which he had been president in 1894–95, then merged in the Royal Society of Medicine; at the London Fever Hospital; and more recently at the Metropolitan Asylums Board as the nominee of the Ministry of Health. He presided in 1912 over the section of Sanitary Service at the Congress of the Royal Sanitary Institute in York in 1912, giving a notable address on the decline of birth- and death-rates. He also took a keen and affectionate interest in the Society of Apothecaries, which he had entered (by apprenticeship to the late Sir George Buchanan) in 1870, and where he became a member of the Court of Assistants, and in later years (1920–21) Master of the Society. We may here note another honour in the closing years of his life, of which he was particularly proud—the receipt of the Jenner medal of the Royal Society of Medicine in 1921.

The outbreak of the war sent Murphy back to active official duties within a few days. He was a Lieut.-Colonel R.A.M.C. on the Territorial list for special sanitary service, and was at once attached to the London Command, where he worked as specialist sanitary officer throughout the war under four successive Directors of Medical Services. His knowledge of London and its public health arrangements, and his organising ability, were invaluable in the problems of billeting, transport, and arrival of troops, hygiene of quarters, and sanitation in all its aspects in relation to the large military area and the mass of soldiers quartered or passing through London, as well as with the problems of cerebro-spinal fever and other epidemics which arose from time to time during this period. His activity and devotion to this duty, which was practically continuous for four years, were greatly appreciated. An account of it will, it is hoped, be included in the official history of the war. For these army services he received the K.B.E. (Mil.) in 1918.

The following appreciation is from a well-known public health officer and epidemiologist:—"To his contemporaries the memory of Murphy will ever remain as that of a loved and revered colleague and friend. He accomplished much for his own time and has left a rich inheritance of example to those who will follow him in the ever-widening field of public health administration. This is not the occasion to consider his published work which advanced the standard of administration and afforded a pattern for much contemporaneous inquiry. We would rather ask what manner of man he was, what the personality of him who has gone from us; what the hidden springs from which during a long official life, all this energy flowed. For behind the work there lies the spirit of the worker, and it was this which endeared him to his colleagues and contemporaries. To him disease was no chance accident of life, but evidence of the working of laws which he set himself reverently to examine. He sought Nature in her own crucible and in the spirit of humility which marks the true worker.

"To such natures there comes now and again a glimpse—a suggestion rather—of the majesty of all Nature's laws. He was fond of the phrase 'a working hypothesis,' a rule to be tested by every new set of circumstances to which it might be applied, and modified if fuller knowledge disclosed defect. This theme runs like a chord through much of his published work, and it had many variants. It appears very early in his epidemiological studies; it reappears in one of his latest published addresses, as when at York in 1912 he applied it towards elucidating the movement of the birth- and death-rates. Law in nature was to him as a law of being. The spirit of service was also strong in him, and explains

much of the strenuous life he led. For him, to live was to serve, and herein lies the example for those who follow. Service to his fellows; service to England (as when during the war years and at an age when many might, without reproach, have been content as lookers-on, he undertook the duties of Sanitary Officer of the London Command); service to humanity, were dominant notes in his character. In many ways this spirit of service found illustration, but one recalls the succession of deserving lads who owed their start in life to his fatherly interest in them. It might be said also that the homeless and vagrant poor he regarded as his special care, for long before there was any organised provision of night shelters for them, he knew the number of those who nightly sought the companionship of their fellows under the stars on the Embankment, in the parks, or under the railway arches. It was social service of a high order, done characteristically, under the guise of official duty. Kindliness in thought and action pervaded his life."

Sir Shirley Murphy was buried at Brookwood cemetery on May 1st, after a service to his memory at St. Martin-in-the-Fields on the same morning, at which Lady Murphy and his two daughters, Sir H. Seymour King, and other relatives were present, together with many friends and representatives of public bodies.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear-Admiral W. Bett is placed on the Retd. List.
Surg. Capt. J. F. Hall to be Surg. Rear-Admiral.
Surg. Lieut.-Comdr. J. D. S. Higgins is placed on Retd. List.
Surg.-Lieuts. H. L. Douglas and J. T. Wylie to be Surg. Lieut.-Comdrs.

Royal Horse Guards.

Surg. Maj. E. D. Anderson, from Life Guards, to be Surg. Maj.

ROYAL ARMY MEDICAL CORPS.

Col. A. H. Morris, late R.A.M.C., retires on ret'd. pay.
Surg. Capt. G. O. Chambers, from Life Guards, to be Maj.
To be Capt.: Surg. Capt. A. B. H. Bridges (from Life Guards), and Capts. W. R. D. Hamilton and E. J. S. Bonnett (from R.A.M.C., Militia).

TERRITORIAL ARMY.

Maj. F. R. Harris is confirmed in his rank.
Maj. V. T. Carruthers (Res. of Off.) to be Maj.
Capt. F. G. Lescher (late R.A.M.C., Spec. Res.) to be Capt.
General Hospitals: The undermentioned relinquish their commissions and retain their rank except where otherwise stated: Lt.-Col. L. K. Harrison (Bt. Col.); Majs. G. W. Watson (Bt. Lt.-Col.), H. R. Dean, A. R. Hallam, and W. H. M. Telling (granted the rank of Lt.-Col.); Capts. J. le F. C. Burrow, P. Hamill (granted the rank of Maj.), W. R. Higgins, W. M. Munby, H. J. Slade, M. J. Stewart, C. W. Vining (granted the rank of Maj.), E. W. Assinder, J. Johnston, C. A. Moore (granted the rank of Maj.), H. B. W. Smith, H. E. Smith, W. C. Souter, and B. J. Ward.
Sanitary Companies: Capt. N. S. Golding relinquishes his commn. and retains the rank of Capt.
Supernumerary for service with O.T.C.: Maj. W. D. Sturrock ceases to be employed with the Field Amb. Section, Oxford University O.T.C. Lt. D. R. Wheeler ceases to be empld. with the Belfast University Contingent, Senior Div., O.T.C. Capt. C. H. Budd (late R.A.M.C., T.F.), to be Capt. for service with the Medical Unit of the Cambridge University Contingent, O.T.C. Capt. (local Maj.) W. Barclay resigns his commn. and is granted the rank of Maj.

ROYAL AIR FORCE.

Flight Lt. E. W. Longden relinquishes his temporary commission on ceasing to be employed.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers: Lt.-Cols. J. Miller and S. G. Barling (General List, T.A. Res.); Majs. W. Y. Martin (ret.), J. A. H. Aitken, and J. R. Menzies.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful:—

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

Part I., Physics and Electrotechnics.—Mahmoud Ahmed Affi, Narayan Mahadev Bodas, John E. Bowen, Burnett L. W. Clarke, Lionel R. G. de Glanville, Malcolm Frizell, Norman Gattellier, William H. Hastings, Joseph F. James, Mahadev Dattatraya Joshi, Anna T. Kellock, Jane S. Knight, Gabriel J. Luyt, Alexander G. MacLeod, Margaret J. Moir, Huggahalli Sundara Rajan, Alexander Ross, William H. Rowden, Jessie E. Sheret, Edward W. Twining, Sorab Byramji Warden, and Edward V. Whitby.

Part II., Radiology and Electrology.—Mahmoud Ahmed Affi, Eric G. Barker, John E. Bowen, Burnett L. W. Clarke, Harold K. G. Hodgson, Joseph F. James, Jane S. Knight, Huggahalli Sundara Rajan, William H. Rowden, James P. Thierens, and Edward W. Twining.

DIPLOMA IN PUBLIC HEALTH.

Dhirendranath Basu, Leila Savoja Chatterji, *Alexander J. Copeland, Nicholas D. Duzscombe, Elizabeth J. Findlay, Alfred T. Gaillon, Churchill H. Gunasekara, *James C. L. Hingston, †Spencer Hunt, Florence S. Kirk, Hilda L. Laidlaw, Frederick Lobo, Barbara R. A. Morton, Lalit Kumar Ray, Annabella A. Reid, Mary Russell, Beatrice M. Sellar, Yaimini Sen, and Annie E. Somerford.

* Distinguished in the application of Sanitary Science.
† Distinguished in the principles of Hygiene.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A Hunterian lecture on Chronic Mastitis will be delivered in the theatre of the College in Lincoln's Inn-fields on May 9th at 5 P.M., by Prof. Geoffrey Keynes.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on April 26th, the chair being occupied by the President, Sir Humphry Rolleston.

The following were elected to the Fellowship on the nomination of the Council: Dr. R. Hingston Fox, Dr. J. Porter Parkinson, Dr. D. W. Sutherland, Dr. D. G. Hall, Dr. W. S. Fox, Dr. J. C. H. Leicester, Dr. F. E. Tylecote, Dr. J. Owen, Dr. L. G. Parsons, Dr. John Parkinson, Dr. A. Hope Gosse, Dr. P. H. Manson-Bahr. Nominated by the Council under By-law XXI. (b): Sir Hugh Kerr Anderson and Dr. Byrom Bramwell.

The following were admitted as Members, having passed the required examination: Dr. C. Wm. Buckley, Dr. R. Coope, Dr. L. Cunningham, Dr. S. E. Denyer, Dr. J. D. H. Freshwater, Dr. Sylvia K. Hickson, Dr. R. Hilton, Dr. P. K. McCowan, Dr. A. Razik, Dr. M. E. Shaw, Dr. J. Stokes, Dr. G. B. White, Dr. V. R. Woodhill, Dr. F. H. Young.

Diplomas of L.R.C.P. were conferred upon 159 candidates who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws. The following are the names and medical schools of the successful candidates:—

C. Abbu, Madras; J. W. Alden, Oxford and St. Thomas's; F. G. Allan, St. Thomas's; D. D. Anderson, St. Bart's; Constance E. Appleton, King's Coll.; G. R. M. Apsey, Guy's; E. W. Arndt, Ceylon and Middlesex; N. Asherson, Univ. Coll.; Lucy T. Badcock, London; W. H. Bailie, St. Mary's; D. N. Balter, Vienna and St. George's; V. H. Barker, London; M. K. Barnett, Birmingham; Jessie H. Baxter, Univ. Coll.; A. H. Bennett, St. Bart's; H. W. Bland, Birmingham; B. Bourke, Dublin; C. G. Bowen, Guy's; J. F. Brailford, Birmingham; O. Brenner, Birmingham; T. F. Briggs, St. Thomas's; B. Broadbent, Cambridge and St. Bart's; F. Brockington, King's Coll.; W. A. Brown, Guy's; Dorothy E. B. Buckmaster, London; Helen Bumstead, Charing Cross; J. T. Burrell, Cambridge and London; Viole C. Cameron, St. Mary's; J. M. Clarke, Otago and Middlesex; Olive G. Clouston, Cambridge and London; E. Cohen, Leeds; R. S. Coldrey, St. Bart's; P. Connan, King's Coll.; W. F. Cooper, Cambridge and St. Mary's; Florence E. Cowlin, Charing Cross; D. W. Crombie, McGill and London; S. J. Davies, St. Bart's; M. Denman, Middlesex; V. P. de Zoysa, Ceylon and Univ. Coll.; H. T. Edmunds, King's Coll.; D. G. M. Edwards, Univ. Coll.; K. S. Ellis, Birmingham; Lucy M. Elsom, King's Coll.; Gwladys Evans, Cardiff and St. Mary's; M. W. H. Evans, Cambridge and London; V. F. Farr, St. Bart's; Emmie D. Fenwick, St. Mary's; Margaret Findlay, Cape and Royal Free; A. L. Finiefs, Paris and St. Mary's; G. H. Fitzgerald, Guy's; Annie Foner, Univ. Coll.; K. V. Francis, St. Mary's; Margery Freeborough, Royal Free and St. Mary's; F. W. Furniss, Cambridge and King's Coll.; P. C. C. Garnham, St. Bart's; Una Christina Garvin, Royal Free; Lena B. Gayer, Royal Free and London; L. Ghabrial, King's Coll.; Marjory A. Godfrey, Royal Free; S. J. Golden, London; Louisa P. Gordon, King's Coll.; Marion Greaves, Leeds; J. R. Hamerton, St. Bart's; L. W. Hamp, Birmingham; N. G. Harris, St. Thomas's; J. S. Hawes, London; Katharine M. Hick, Leeds; R. A. Highmoor, Cambridge and Leeds;

D. B. Hitchings, Guy's; J. Holroyd, Manchester; W. D. Hoskins, Cardiff and St. Thomas's; D. H. Hubbs, Guy's; Audrey M. Hughes, Charing Cross; L. D. A. Hussey, King's Coll.; R. Jackson, Cambridge and Middlesex; T. James, St. Bart's; M. Jayakar, Bombay and Univ. Coll.; A. Jephcott, St. Bart's; F. Lawrence, London; Ruth A. M. Leak, King's Coll.; F. H. Leekam, St. Mary's; P. Leftwich, Univ. Coll.; E. Linfoot, Leeds; A. R. Lister, Cambridge and London; N. L. Lloyd, Guy's; L. P. Lockhart, Cambridge and St. Thomas's; Marion Lones, Univ. Coll.; C. A. Lupton, Cambridge and St. Thomas's; C. R. McClure, London; Phyllis C. Mackenzie, Westminster; Kate Madders, Univ. Coll.; C. C. Maguire, Birmingham; J. Marley, Liverpool; Edith T. Marshall, Royal Free; Edith W. W. Marshall, Univ. Coll.; W. H. Marston, Birmingham; L. Mather, Manchester; Kathleen F. Matthews, Univ. Coll.; M. Mitman, Guy's; V. S. Monie, Madras and Edinburgh; A. J. Morland, Univ. Coll.; N. R. Mucadam, Bombay and Royal Free; E. B. Murrell, Cambridge and St. Thomas's; H. W. Needham, Cape and St. Bart's; F. W. Pare, Manchester; C. M. Pearce, St. Bart's; T. V. Pearce, St. Thomas's; J. P. Peel, Leeds; A. F. Percy, Guy's; J. W. Perkins, Calcutta and St. Mary's; J. H. Piddock, Birmingham; L. R. W. Price, Cambridge and St. Bart's; Gertrude E. Pugnaire, Liverpool; Margaret A. Quine, King's Coll.; R. P. Rees, Middlesex; Phyllis M. Rex, Royal Free and St. Mary's; M. M. Riad, Cairo; D. Riding, Liverpool; C. E. Roach-Smith, London; J. A. W. Robertson, St. Bart's; G. T. Robinson, Manchester; H. N. Rose, St. Bart's; May K. Ruddy, Charing Cross; A. Salama, Cairo; Edna M. Sanders, King's Coll.; D. H. Sarafian, Constantinople and Middlesex; Margaret V. Saul, King's Coll.; V. E. Schlesinger, Cambridge and Univ. Coll.; A. T. Schofield, Cambridge and St. Mary's; G. D. Shaw, Guy's; A. W. L. Smith, Manchester; C. N. Smith, Univ. Coll.; N. R. Smith, Sydney; C. F. V. Smout, Birmingham; E. G. Snaith, London; J. V. Sparks, Cambridge and St. Bart's; A. L. B. Stevens, Oxford and St. Thomas's; Ella M. Stratton, Royal Free; H. H. Sumption, St. Mary's; S. S. Suzman, Cape and Guy's; E. J. Targett and E. Thorpe, Birmingham; K. W. Todd; Olga F. Tregelles and Gladys M. Tullidge, Royal Free and St. Mary's; C. F. Turner, Birmingham; A. S. H. Walford, Cambridge and St. Thomas's; Marjory W. Warren, Royal Free; Constance C. M. Watson, Charing Cross; M. Weinbren, Guy's; L. E. H. Whitby, Cambridge and Middlesex; D. B. Whitlock, Guy's; M. C. Wilkinson and L. G. Williams, St. Thomas's; L. A. Willmott, St. Bart's; J. G. Wilson, Westminster; Lina Marie C. Wingfield, Royal Free; J. L. Woodhouse, Guy's; and M. I. Zimmerman, Westminster.

Diplomas in Tropical Medicine and Hygiene were conferred (in conjunction with the Royal College of Surgeons of England) upon the following 10 candidates from the London School of Tropical Medicine:—

R. Briercliffe, C. Cook, H. S. de Boer, M. L. Dhawan, C. H. Han, A. G. Harsant, C. de C. Martin, A. C. Rebello, R. H. Simpson, and E. Tagoe.

Diplomas in Public Health were conferred (conjointly with the Royal College of Surgeons of England) upon the following 20 candidates:—

E. B. Allnutt, St. Bart's and Royal Army Med. Coll.; U. P. Blackwell, Univ. Coll.; H. Carpenter, Royal Inst. Public Health; U. B. Cox, St. Mary's and Univ. Coll.; R. T. Edwards, St. Bart's; D. M. Jones, London and Royal Inst. Public Health; D. G. Karandikar, King's Coll.; H. T. Le Vieux, Guy's; E. K. Macdonald, St. Thomas's and Royal Inst. Public Health; E. O. Morphy, Dublin and Royal Inst. Public Health; W. W. Morrison, Middlesex; G. G. Naoleker, Allahabad and Royal Inst. Public Health; H. A. Osborn, King's Coll.; A. E. Quine, Univ. Coll.; J. L. Rebello, Bombay and Univ. Coll.; E. M. Reece, Univ. Coll.; F. A. Robinson, Durham and Royal Army Med. Coll.; S. K. Shenai, Univ. Coll.; K. Singh, Calcutta and Univ. Coll.; and G. Tate, King's Coll. and Royal Army Med. Coll.

Communications were received from the secretary of the Conjoint Board of Scientific Societies informing the College that the Board has been dissolved; from Mr. H. Wilson Holman offering for the acceptance of the College a memorial to the late Dr. William Musgrave, F.R.S., formerly in St. Leonard's Church, Exeter—the offer was accepted with thanks; from the Committee of the Centenary Celebration of the birth of Pasteur, being an invitation to the ceremonies to be held in Paris, May 24th to 28th, and in Strasbourg, May 31st and June 1st next. Dr. Morley Fletcher was appointed to represent the College.—A letter was received from the treasurer, Sir Dyce Duckworth, expressing his intention of resigning the office of treasurer in July next.—After notable tributes to the work of the Treasurer during his 39 years' tenure, of the office have been made by Dr. Sidney Phillips, Dr. Raymond Crawford, the Senior Censor, and Dr. Ormerod, the Registrar, the resignation was received with regret, all the Fellows standing.—Dr. Fawcett was re-elected, on the nomination of the Council, a representative on the Senate of the University of London.—Applications for restoration of the Membership, made in consequence of the recent alteration of the by-laws relating to Members, from Dr. E. A. Gates, Dr. Reginald Pratt, Dr. A. Gregson Williams, Dr. William McCallin, and Dr. M. K. Robertson were received and granted. After some formal business the President dissolved the Comitia.

UNIVERSITY OF LONDON.—At a recent examination for the Diploma in Psychological Medicine the following candidates were successful: Allen C. Hancock and William D. Nicol (with special knowledge of Psychiatry).

A lecture on the Psychology of Epilepsy will be given in the Robert Barnes Hall at the Royal Society of Medicine, 1, Wimpole-street, W., by Dr. E. D. Wiersma, professor of psychiatry and neurology in the University of Groningen, on Thursday, May 24th, at 5.15 p.m. The chair will be taken by Dr. Robert H. Cole. The lecture will be delivered in English. Admission free.

FEDERATION OF MEDICAL AND ALLIED SOCIETIES. The annual dinner of the Federation will be held at the Langham Hotel, Portland-place, London, W. 1, on Wednesday, May 23rd, at 7.15 p.m., when Sir Berkeley Moynihan, the President, will take the chair. Early applications should be made to the secretary, 12, Stratford-place, W. 1, for tickets, the price of which (exclusive of wine) is 12s. 6d. each.

GRANTOWN HOSPITAL.—In commemoration of her husband, Lady Seafeld has given a maternity ward to the Ian Charles Cothall Hospital, Grantown. The ward was formally opened on May 3rd by Colonel D. W. Cameron, of Lochiel. The ward has been built to the west of the main corridor of the hospital, with convenient access from the administrative and kitchen departments. It is planned to accommodate five patients. An X ray room has been constructed by the hospital trustees, and is housed under the same roof. The X ray installation, which was declared open also on May 3rd, was subscribed for as a memorial to the late Mrs. Hutchison.

MEDICAL SCHOLARSHIPS.—Fifteen medical entrance scholarships and exhibitions of an aggregate total value of about £1530, tenable in the Faculty of Medical Sciences of University College and King's College, and in the medical schools of Westminster Hospital, King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered for competition on June 26th, 1923. Full particulars and entry forms may be obtained from the secretary of the London Inter-Collegiate Scholarships Board, S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, S.E. 5.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—The syllabus of the post-graduate course to be held from May 7th–June 29th has now been issued. The course will consist of the following subjects. Lectures on the Pathology of the Nervous System, Mondays, 12 noon; lectures on the Anatomy and Physiology of the Nervous System (if sufficient entries are received); out-patient clinical teaching, Mondays, Tuesdays, Thursdays, Fridays, 2–3.30 p.m., and clinical lectures and demonstrations on these days at 3.30 p.m. Those taking part in the course include Dr. Hinds Howell, Dr. S. A. Kinier Wilson, Dr. Grainger Stewart, Dr. Risien Russell, Dr. F. M. R. Walshe, Dr. Gordon Holmes, Mr. P. Sargent, Dr. James Taylor, Dr. W. J. Adie, Dr. J. Collier, Mr. Leslie Paton, Dr. P. W. Saunders, Dr. Aldren Turner, Mr. T. H. Just, Dr. L. D. Bailey, Mr. S. Scott, Dr. Russell Reynolds, Mr. D. J. Armour, and Dr. J. Godwin Greenfield. Further information may be obtained from the Dean of Medical School, Dr. C. M. Hinds Howell, at the Hospital, Queen-square, Bloomsbury, London, W.C. 1.

THE IRISH WOMEN'S NATIONAL HEALTH ASSOCIATION.—The annual meeting of this National Health Association was held on April 27th. The Marchioness of Aberdeen and Farnham, who presided, said that it was intended during the coming autumn to hold a conference, to which representatives of public bodies and voluntary associations interested in the matter of public health would be invited. The condition of the country had made it somewhat difficult to carry on the work of their branches, but she had good reports from outlying districts, notably from Valentia Island, Waterford, Cork, Limerick, and Clare. Dr. Alice Barry submitted a report on the working of baby clubs and welfare societies in the city of Dublin. She said the mortality rate during the last year amongst children was 116 per 1000, compared with 163 per 1000 a few years ago. Through the babies' clubs they had distributed 12,666 gallons of milk at an average price of 5d. per quart. Dr. G. P. H. Sheehan, of the Peamount Sanatorium, in the course of his report, said that the institution had been entirely renovated. The great difficulty they had to contend with was the large number of advanced cases sent to them. At the beginning of last year the number of patients in the sanatorium was 33; during the year 373 were admitted, making a total of 366. Of these 347 were discharged, leaving 159 patients at the end of the year. A resolution was carried calling for a conference between the different organisations engaged in relief work in Ireland, for the purpose of arranging co-operation between them.

DENTAL BOARD OF THE UNITED KINGDOM.—The next session of the Board will take place on Wednesday, May 9th, at 2 p.m., when the Rt. Hon. Francis Dyke Acland, the chairman, will deliver an address, which will be followed by the hearing of disciplinary cases and consideration of other matters.

WHOOPIING-COUGH IN MANCHESTER.—During the last few weeks there has been an epidemic of whooping-cough in Manchester, and so far there are no signs of any substantial decrease in the number of fresh cases reported. In the week ending April 21st, there were 187 new cases and 13 deaths, as against 192 new cases and 12 deaths in the previous week from this disease. The number of cases of measles was 111 as against 105. Owing to the prevalence of infectious diseases, visiting of children in the Swinton schools by their relatives and friends is suspended until further notice.

INTERNATIONAL SOCIETY OF THE HISTORY OF MEDICINE.—At a meeting of the permanent committee of this Society, held at Antwerp on April 11th, it was voted to hold the Fourth International Congress of the History of Medicine at Geneva, Switzerland, during the third week of July, 1925. The following officers were elected: President, Dr. Charles Greene Cumston, Geneva. Secretary General, Dr. A. de Peyer, Geneva (Rue General Dufour, 20). President of Honour, Sir D'Arcy Power, London. Vice-Presidents of Honour, Dr. Edward B. Krumphaar, Philadelphia, U.S.A.; Dr. Tricot-Royer, Antwerp; Dr. J. G. de Lint, Gorinchem, Holland; Dr. Charles Singer, London; the President of the Geneva Medical Society for the year 1925.

THE LATE DR. CAMPBELL MACLEAN.—The death of Dr. John Campbell Maclean, at the age of 77, is a real loss to Swindon, and indeed to Wiltshire. Born in 1846, he took the M.B., C.M. Edin. in 1868, and began practice in Swindon in 1869, when it was almost a village, and developed a practice which eventually grew very large, for he endeared himself to his patients, and, moreover, his diagnosis was accurate and painstaking, and his treatment sound. His practice embraced places as far apart as Cirencester, Marlborough, and Malmesbury. He was surgeon to the Victoria Hospital, Swindon, and found time to keep abreast of the latest methods of treatment. He was an enthusiastic fisherman, was interested in boxing, and told a good story. The general esteem in which he was held was testified to by the numbers who attended his funeral.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—On April 27th, in the hall of the Royal College of Physicians of Ireland, the Royal Academy of Medicine held a special meeting to confer its honorary fellowship on Dr. Ernest Hastings Tweedy, and to hear an oration by Dr. W. R. Fearon in honour of the anniversary of the birth of Pasteur. Sir Arthur Chance, President of the Academy, was in the chair, and among those present were the Presidents of the two Royal Colleges, the Provost of Trinity College, and the Council and Professors of the Royal College of Surgeons. In presenting Dr. Tweedy to the Academy, Dr. T. P. C. Kirkpatrick, general secretary, said that throughout the world Ernest Hastings Tweedy had won both for the Academy and for himself an honoured name. Sir Arthur Chance, in presenting the certificate to Dr. Tweedy, said that in one branch of their art Dublin held foremost place, for in the subject of obstetric medicine her fame was known all over the civilised world. By his original and valuable investigation, his lucid teaching, and his public work Dr. Tweedy had advanced and maintained the reputation of the Dublin school of medicine. An oration dealing with the life-work of Pasteur was then delivered by Dr. Fearon.

NEED FOR MATERNITY HOMES.—Addressing a meeting in Manchester on April 24th, on the Need for Maternity Homes, Dr. Frances Ivins said that though a material reduction had been effected in the rate of infant mortality in this country, there had been no corresponding decrease in the death-rate caused by childbirth, which remained what it was 30 or 40 years ago. Now that midwives were obliged to call in medical assistance, when this was required, the conclusion the speaker arrived at was that the cause was mainly the lack of sufficient ante-natal care of the expectant mother. Women must organise, beginning with the home, and see that everything was right there in the first place. The establishment of special clinics where pregnant women might be advised whether or not they were in a normal condition was advocated. Those suffering from abnormal symptoms should be retained and transferred to special maternity homes. To this end the general reluctance of women to submit to ante-natal examination, and to leave their homes for confinement, should be overcome before everything. The financial difficulties were not insuperable. If women themselves were prepared to organise the problem was as good as solved.

BRITISH CONGRESS OF OBSTETRICS AND GYNÆCOLOGY.—The next Congress will be held in London in 1925, one of the subjects for discussion being the Treatment of Puerperal Blood Infections.

ABERDEEN ROYAL INFIRMARY: RESIGNATION OF SIR HENRY GRAY.—At a meeting of directors of the Aberdeen Royal Infirmary held on April 25th, a letter to the chairman from Sir H. M. W. Gray was read, stating that he had been appointed chief surgeon to the Royal Victoria Hospital, Montreal, and desired to be relieved of his duties at the infirmary. The resignation was accepted with much regret.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—The financial position of this institution according to the 106th annual report, which deals with the year 1922, shows some improvement, for an accumulated deficit of £840 has been liquidated with a small balance of £88. The total income was £8823 and the expenditure £7893. The number of in-patients treated during the year was 874, and the average daily number of beds occupied was 36.68 out of a maximum establishment of 42 beds. The average stay was 15.2 days. The new out-patients numbered 15,095 and the casualties 1897. There were 35,479 attendances in all, and upwards of 4000 pairs of spectacles were prescribed.

THE NURSES' CO-OPERATION.—The thirty-second annual report of this institution, dealing with the year 1922, shows that there were 365 nurses on the general staff and 34 asylum-trained nurses who take mental cases only. Taking into consideration the general good health of the community and the inability of many to afford the services of a private nurse, the result of the year's working is regarded as satisfactory. The gross receipts from patients amounted to £51,436, of which the sum of £48,403 has been paid to nurses. The income derived from commission on fees earned by nurses amounted to £3110. The address of the Co-operation is 22, Langham-street, London, W. 1.

LONDON TEMPERANCE HOSPITAL.—The annual report for 1922 contains a statement by the Medical Committee indicating the value of Erlangen deep-therapy for the treatment of cancer and other forms of malignancy. Illustrative cases are given. Among non-malignant conditions which have reacted favourably are fibroid tumour of the uterus, Hodgkin's disease, and keloid, while in lupus the treatment does not seem to have yielded better results than those obtained by ordinary X ray treatment. In the in-patient department 377 patients stayed an average of 19 days each, and one death occurred during the year. In 1921 the number of cases was 212, and the average stay 32 days; 6933 cases were seen in the out-patient department, as compared with 7719 in 1921. The total ordinary income was £7822 and the expenditure £8903.

DENTAL TREATMENT FOR INSURED PERSONS.—At a recent meeting of the Aberdeen Burgh Insurance Committee the following resolution, submitted by the Finance and Medical Benefit Subcommittee, was approved: In view of the fact that the benefits of deposit contributors under the National Insurance Acts are dependent upon the amount standing to their individual credits in the deposit contributors' fund, and that in very many cases there are substantial surpluses available for supplementary purposes, the Aberdeen Burgh Insurance Committee are of opinion that dental and ophthalmic treatment should be added to the benefits at present at the disposal of contributors, and recommend that steps should be taken to obtain legislative authority for the inclusion of such treatment amongst ordinary benefits under the Acts. It was agreed to forward a copy of the resolution to the Scottish Board of Health.

ASSOCIATION OF PUBLIC VACCINATORS.—The annual dinner of this Association was held at the Hotel Cecil on April 27th, with Dr. F. W. Brookes, the retiring President, in the chair. In proposing the toast of the Association, Dr. A. E. Cope referred to the aims of the Association which were still unattained after 25 years' work, inasmuch as the public vaccinators were still in the service of boards of guardians. The dwindling membership, now only a little more than a tenth of that possible, made the further pressing of their claims a matter of difficulty. Dr. Arthur Drury proposed the health of the visitors, and Dr. J. C. McVail and Dr. S. Monckton Copeman replied. Dr. McVail impressed on the members the inadvisability of entering into correspondence with anti-vaccinists in the public press unless armed with all the facts. Small outbreaks of small-pox had in the past and probably would continue to be the decisive factor in inducing people to be vaccinated. Dr. Copeman told several amusing stories of his work at the Ministry of Health in connexion with public vaccination. The health of the President was proposed by Dr. Climson Greenwood, first president of the Association.

Prof. George R. Murray, D.L., M.D., has been appointed to represent the Victoria University of Manchester at the ceremonies connected with the centenary of the birth of Pasteur, which will be held in Paris and in Strasbourg in May.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—Princess Mary has consented to present the prizes and certificates to the students on Saturday, June 2nd. Scholarships to the total value of £1010 will be awarded for the session beginning in October next.

SMALL-POX.—No new cases have been reported at Nelson for over a fortnight. In all 64 patients have been treated, and of these 22 have been discharged. At Liverpool two cases of small-pox were discovered on board a liner from a South American port.

NATIONAL COUNCIL FOR MENTAL HYGIENE.—This Council was incorporated under the Companies Acts on April 5th. Subscriptions may be forwarded to the acting secretary, Room 55, Windsor House, Victoria-street, London, S.W. 1.

METROPOLITAN POLICE SURGEONS' ASSOCIATION.—The annual meeting and dinner of the Association were held at the Holborn Restaurant on April 26th, Dr. A. E. Kennedy, the retiring President, being in the chair. Amongst those present were the Rt. Hon. W. C. Bridgeman, M.P., Home Secretary; Sir Charles Ballance, chief surgeon to the Metropolitan Police; Sir Bernard Spilsbury; Dr. Cassidy, physician to the Metropolitan Police; and Dr. Sanders, M.O.H. for West Ham. An enjoyable musical programme was given after dinner.

PEOPLE'S LEAGUE OF HEALTH.—An oral examination in connexion with the recent series of the Sims Woodhead Constructive Educational Health Lectures, delivered to teachers under the auspices of the People's League of Health, was held on May 2nd at Hamilton House, Mabledon-place, London. A travelling scholarship prize, consisting of a week's visit to a foreign country, with facilities for visiting the health centres, will be awarded to the student obtaining the highest number of marks at this examination, and certificates will be awarded to others. The examiners were Prof. J. G. Adami, Prof. H. R. Kenwood, and Dr. Eric Pritchard.

DONATIONS AND BEQUESTS.—The late Mr. Joseph Howard, J.P., left by will £1000 to the Prince of Wales's General Hospital, Tottenham, and £500 each to the Passmore Edwards Hospital, Wood Green, N., and Dr. Barnardo's Homes.—Under the terms of the will of the late Mr. H. Kaye, of S. Croydon, who shot himself after shooting his wife and child in September last, the hospitals of London will benefit at the discretion of the trustees. The testator left property to the value of some £85,000.—Sir Charles Brown, chairman of the Harris Orphanage, Fulwood, has given £800 to complete the purchase of a house at Lytham as a seaside home for sick and convalescent children of the orphanage.—Mr. Louis Walker, of Bradford, and a former member of the Sanitary Committee, bequeathed £2000 to the Bradford Royal Infirmary and £2000 to the Royal Albert Asylum, Lancaster; £1000 each to the Bradford Institution for the Blind and the Bradford Eye and Ear Hospital; and £500 to the Bradford Children's Hospital.—During last month the St. Mary's Hospitals, Manchester, received legacies and donations amounting to £256, and the Manchester Royal Infirmary £1425.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	..	..	..	£2 2 0
	Six Months	..	..	..	1 1 0
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Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Registration of Medical Herbalists.

THE text of the Bill introduced into the House of Commons by Lieut.-Commander KENWORTHY to provide for the registration of medical herbalists has now been issued. Clause 1 deals with the establishment and constitution of a general medical herbalists council composed of nine members appointed by the Privy Council, the Minister of Health, the Board of Education, as well as the President, the Vice-President, and the members of the Council of the National Association of Medical Herbalists of Great Britain, Limited. Each member of the Council other than the first members is to hold office for five years. Clause 2 provides for the keeping of a register of medical herbalists who satisfy certain conditions of admission. Clause 3 provides for the making of rules by the General Medical Herbalists Council, such rules to be subject to the approval of the Minister of Health. Clause 4 deals with the staff and expenses of the Council, and Clause 5 prescribes the conditions under which fees are to be charged for registration. In Clause 6 provision is made for the admission under certain conditions of persons trained outside the United Kingdom. Penalties are imposed for the unauthorised use after the passing of the Act of the name or title of registered medical herbalist, the improper use of certificates of registration and falsification in any matter relating to the register. The Bill does not apply to Scotland or Ireland.

HOUSE OF LORDS.

WEDNESDAY, APRIL 25TH.

Dangerous Drugs Bill.

ON the motion of the Earl of ONSLOW the Dangerous Drugs and Poisons Amendment Bill was read a second time.

HOUSE OF COMMONS.

TUESDAY, APRIL 24TH.

The Housing Bill.

MR. NEVILLE CHAMBERLAIN (Minister of Health), in moving the second reading of the Government's new Housing Bill, said that the building of houses had not overcome the problem of overcrowding. This state of affairs he admitted constituted a perpetual danger to the physical and moral health of the community. But it was necessary to treat the problem with sense as well as with sensibility. It was necessary to begin the expansion of dwelling-houses upon lines which were capable of growth and development, and as far as possible artificial devices should be avoided. Private enterprise in housing was beginning to function once more. He was rather surprised to find how many houses had been built without any assistance from the State or local authorities. During the past six months upwards of 12,000 houses had been completed, and another 16,000 were in course of erection. The clause on slum areas in the Bill was not the last word on the subject, but it would enable them to get a considerable amount of work done in the next few years. The Government contemplated that the annual loss on houses built under the Bill would be approximately double the equivalent of the £6 subsidy which the State was providing, and the extra loss would have to be borne by the local authorities out of the rates. They were reversing the Addison plan in the interests of economy. The dimensions of the subsidy houses would be 810 superficial feet.

MR. WHEATLEY, on behalf of the Labour party, moved a resolution to the effect "That this House cannot assent to the second reading of a Bill which is inadequate to deal with the present housing shortage; ignores the difficulty of land purchase and transfer; fails to provide the means of securing a sufficient supply of building materials at reasonable prices; throws an excessive financial burden upon local authorities, and interferes unnecessarily with their administrative powers; fails to reduce the burden of interest imposed upon dwelling houses by the present financial system; and provides only for an unreasonably small type of house." The proposed houses, he said, were too small, miserably small. They would never be homes; they would soon be slums.

MR. R. J. DAVIES seconded the motion for rejection. On the debate being resumed on the following day, Lieut.-Colonel FREMANTLE said he would like to make a few remarks from the point of view of one who had essentially studied the question of housing for 20 years, for 15 of them as a medical officer of health, and more latterly in an administrative capacity in connexion with the London County Council. If they did not force the pace he believed

that they would get a good output of houses under the new scheme. As a medical man who was most anxious to help to prevent the evils arising from bad housing and anxious to remedy them so far as possible, he made an appeal that all the available machinery should be utilised, and he asked Members on both sides of the House to stimulate all the different circles in the community on which they had any influence, and to coöperate in seeing that both private enterprise and public machinery were employed in the solution of the housing problem during the next few years.

On a division the amendment was defeated and the Bill was read a second time by 340 votes to 140.

WEDNESDAY, APRIL 25TH.

Women Physicians as Panel Doctors.

MR. BURGESS asked the Minister of Health how many women physicians were at present acting as panel doctors.—MR. NEVILLE CHAMBERLAIN replied: The total number of women medical practitioners engaged in insurance work in England and Wales is 215.

Cost of the Board of Control.

MR. AMMON asked the Minister of Health whether he would furnish a return of the cost of the Board of Control for the year 1922, including salaries, expenditure of office staff, and travelling expenses.—MR. NEVILLE CHAMBERLAIN replied: The total gross cost of the Board of Control for the financial year 1922-23 was approximately £470,236, less appropriations in aid (fees for licences, &c.) £7756. The gross cost includes grants in aid to local authorities and voluntary institutions £408,791, cost of State institutions for mental defectives £26,795, salaries and expenses, &c., of head office staff £34,650.

Leprosy in Great Britain.

COL. SIR CHARLES YATE asked the Minister of Health whether, considering the marked improvement in the condition of lepers that had been obtained as the result of treatment and research in the leper asylums in India, he would consider the question of taking steps to ascertain how many cases of leprosy there were in this country and what success had attended their remedial treatment.—MR. NEVILLE CHAMBERLAIN replied: The treatment and research referred to are being carefully studied in my department, and I understand that they will be fully discussed at the forthcoming International Conference on Leprosy at Strasbourg, at which this country will be represented by one of the medical officers of the Ministry. I am advised that information is already available as to the approximate number of cases of leprosy in this country and that the treatment referred to in the first part of the question is being used in some of these cases.

THURSDAY, APRIL 26TH.

Codification of Law Relating to Coroners.

MR. WARNE asked the Secretary of State for the Home Department if he was aware that the Departmental Committee on Coroners' Law reported in 1909 that the present law of death certification offered every opportunity for premature burial and every facility for the concealment of crime, and that a great deal of the law relating to coroners dated from the thirteenth century and was not well suited to the changed conditions of modern life; and, in the presence of these statements and the fact that laws relating to coroners were comprised in about 30 Acts of Parliament, what steps was he taking to codify the law on this important subject.—MR. LOCKER-LAMPSON replied: A Bill to consolidate and amend the law relating to coroners is in course of preparation, but my right hon. friend cannot say when it will be possible to introduce it.

MONDAY, APRIL 30TH.

Appointments in Colonial Medical Service.

LIEUT.-COLONEL FREMANTLE asked the Under-Secretary of State for the Colonies which colonies, and how many individual medical appointments, were affected by the discontinuance of recruitment in this country in the case of certain medical posts at low salaries; how these appointments were now filled by the several colonies; and what were the medical qualifications and nationality of the successful candidates for such posts.—MR. ORMSBY-GORE replied: The question whether a medical appointment in the West Indies should be filled from this country is frequently decided only when a vacancy occurs, and accordingly it is not possible to state definitely how many individual appointments are affected, but the number is probably between a dozen and a score. The appointments concerned are some of those in the Windward, Leeward, Bahamas, Turks, Caicos, and Cayman Islands. Most of them are filled by local West Indian candidates of British nationality possessing qualifications obtained in the United Kingdom or Canada. It appears that there are only two medical men in the islands in question whose qualifications are foreign.

Colonel FREMANTLE asked if it was not the case that recent appointments had been given to men with American degrees because the conditions of service were not such as to attract those of British nationality?—Mr. ORMSBY-GORE said he believed that these two exceptions with American degrees were British West Indians.

Colonel FREMANTLE asked the Under-Secretary of State for the Colonies whether the Secretary of State for the Colonies was still, in the words of the Wood Report, always hampered in recruitment for colonial medical appointments carrying rights of private practice by the absence of sufficient data as to the value of such practice; if so, what steps had been taken by his department to give effect to the suggestions of his predecessor in office for removing this defect; and with what result.—Mr. ORMSBY-GORE replied: My hon. and gallant friend will no doubt appreciate that the value of a private practice must vary in accordance with the individual capacity of its holder, and accordingly such information as the Colonial Governments are able to supply can only be of limited utility as a guide to the value of the appointment. The passage in the report dealing with this point was referred to the Colonial Governments concerned for their observations and no specific reply has yet been received. I may say, however, that there has been no difficulty in the case of any appointment to these Colonies since the date of the report.

Colonel FREMANTLE: Is it a fact that despite these uncertainties to which the Under-Secretary has referred a definite idea of the enormous advantages of the private practice is given to those who are applying for these appointments?—Mr. ORMSBY-GORE: I believe the candidate is told in round figures what the private practice brought in to the previous occupant of the post.

TUESDAY, MAY 1ST.

Retirement of R.A.M.C. Officers.

Colonel Sir ARTHUR HOLBROOK asked the Under-Secretary for War whether, seeing the slowness of promotion now existing, he would explain why lieutenant-colonels of the Royal Army Medical Corps and the Royal Army Veterinary Corps were not obliged to retire after four years' service in that rank, as was the case in the infantry, artillery, and other branches of the army.—Lieut.-Colonel GUINNESS replied: No fair comparison can be made with the combatant branches, where conditions are different. The combatant officers in question are not retired, and the fact that they go on half pay does not deprive them as a class of adequate opportunities of further employment. No opportunities on a similar scale would be available for the departmental branches.

Women Medical Inspectors of Prisons.

Mr. BRIANT asked the Secretary for the Home Department if there were any women inspectors of prisons, women medical inspectors of prisons, and women commissioners of prisons; and, in view of the very large number of women in various penal institutions, if he would make appointments of persons of their own sex to these positions.—Mr. BRIDGEMAN replied: There are no women holding the appointments referred to. A woman has been appointed Governor of Aylesbury Borstal Institution, many women magistrates serve on the visiting committees of local prisons, and many women act as unofficial visitors to the women, 1078 in number, in prisons and similar institutions.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, May 7th.

TROPICAL DISEASES AND PARASITOLOGY: at 8.30 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

Paper:

Lieut.-Colonel A. E. Hamerton: The Establishment of an Anti-rabic Institute in the Tropics.

Tuesday, May 8th.

PSYCHIATRY: at 5.30 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

Wednesday, May 9th.

SURGERY: SUBSECTION OF PROCTOLOGY: at 5.30 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

Discussion on Ulcerative Colitis.

The following have promised to take part in the Discussion: Sir Humphry Rolleston, Sir Thomas Horder, Mr. W. Ernest Miles, Mr. P. Lockhart-Mummery, Prof. L. S. Dudgeon, Dr. W. E. Carnegie Dickson, and Dr. A. F. Hurst.

Members of the Subsection and others desiring to speak are requested to communicate with the Hon. Secretary, Mr. Percival Cole, 15, Harley-street, W. 1.

MEDICINE, SURGERY, PATHOLOGY.

Members of these Sections are cordially invited to attend and to take part in the above Discussion.

The Annual Dinner of the Subsection will be held on Wednesday, May 9th, at Oddenino's Restaurant, at 8 for 8.15 P.M. The price of the Dinner is 12s. 6d. (exclusive of wine) payable at the table.

Members intending to be present are requested to notify Mr. Percival Cole, Hon. Secretary.

Thursday, May 10th.

NEUROLOGY: at 5 P.M.

Annual General Meeting:

Election of Officers and Council for 1923-24.

To be followed by a Clinical Meeting.

The Annual Dinner of the Section will be held at the Langham Hotel, Portland-place, W., at 7.30 P.M.

Friday, May 11th.

CLINICAL: at 5.30 P.M.

Annual General Meeting.

Election of Officers and Council for 1923-24.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.

WEDNESDAY, May 9th.—5 P.M., Prof. Geoffrey Keynes:

Hunterian Lecture on Chronic Mastitis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, May 7th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., The Syndrome of the Corpus Striatum: Dr. Kinnier Wilson.

TUESDAY, May 8th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Cerebellar Disease: Dr. Risien Russell.

THURSDAY, May 10th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Disorders of Sensation and Their Significance: Dr. Walshe.

FRIDAY, May 11th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Treatment of Cerebral Tumour: Mr. Sargent.

COURSE OF LECTURES ON NEURO-PATHOLOGY.

MONDAY, May 7th.—12 noon, Cerebro-spinal Fluid: Dr. J. Godwin Greenfield.

A COURSE OF 12 LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS and FRIDAYS if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the whole Course is £12 12s., including Anatomy and Physiology; but these Lectures may be taken separately for a fee of £4 4s. The fee for the Course without Anatomy and Physiology Lectures is £10 10s. Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, May 7th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 12 noon, Mr. Simmonds: Applied Anatomy. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10.30 A.M., Dr. Paterson: Demonstration of Cases (Medical Wards). 2 P.M., Mr. Banks-Davis: Diseases of Throat, Nose, and Ear. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.

WEDNESDAY.—11 A.M., Mr. Simson: Gynaecological Demonstration. 12.15 P.M., Dr. Burnford: Medical Pathology. 3 P.M., Dr. Pernet: Skin Department.

THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department.

FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Department. 11 A.M., Dr. MacDougall: Electrical Department. 2 P.M., Dr. Burrell: Medical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M.; In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE,
 Prince of Wales's General Hospital, Tottenham, N.
 Demonstration of Clinical Cases at 3.30 P.M.
MONDAY, May 7th.—Mr. J. Bright Banister: Gynaecological.
TUESDAY, Dr. J. Metcalfe: Radiological.
WEDNESDAY.—Mr. C. H. Hayton: Throat and Nose.
THURSDAY.—Dr. Yealland: Medical.
FRIDAY.—Mr. E. Gillespie: Surgical.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.
TUESDAY, May 8th.—5.15 P.M., Dr. Millais Culpin: The Unconscious.
FRIDAY.—5.15 P.M.: The Dynamics of the Unconscious.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.
THURSDAY, May 10th.—4.30 P.M., Dr. H. H. Dale: The Physiology of Insulin.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.
TUESDAY, May 8th.—5 P.M., Prof. A. L. McIlroy: Obstruction to Labour.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westminster-street, Marylebone, W. 1.
THURSDAY, May 10th.—5.30 P.M., Dr. F. W. Price: The Clinical Investigation of Tachycardia.

LONDON LOCK HOSPITAL, 91, Dean-street, W. 1.
TUESDAY, May 8th.—2.30 P.M., Mr. J. E. R. McDonagh: Treatment of Gonorrhoea and its Complications.
WEDNESDAY.—5 P.M., Mr. F. Juler: The Commoner External Venereal Diseases of the Eye.
THURSDAY.—4.30 P.M., Mr. Lawrence Abel: Treatment of Acute Gonorrhoea in the Male.
FRIDAY.—4 P.M., Mr. Johnston Abraham: Treatment of Gonorrhoea in the Female.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.
THURSDAY, May 10th.—5 P.M., Dr. C. H. Roberts: The Badly Flexed Head.

INFANTS HOSPITAL, Vincent-square, S.W. 1.
MONDAY, May 7th.—6 P.M., Dr. Eric Pritchard: Modification of Milk.
THURSDAY.—6 P.M., Modification of Dried Milk.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
TUESDAY, May 8th.—4.15 P.M., Dr. G. R. Murray: Organotherapy.

SALFORD ROYAL HOSPITAL.
THURSDAY, May 10th.—4.30 P.M., Dr. Gibson: Psoriasis.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).
THURSDAY, May 10th.—3.30 P.M., Dr. Carey Coombs: Present-day Methods of Examining Cases of Cardio-Vascular Disease.
FRIDAY (at Dorchester).—Mr. T. Carwardine: Diagnosis and Treatment of Gall-Bladder Diseases.

Appointments.

DALEY, F. G., M.A., B.M., B.C. Camb., D.P.H. Oxf., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of Health for the Metropolitan Borough of Wandsworth.
BARTON, W., L.R.C.P. Lond., M.R.C.S., D.M.R.E. Camb., Honorary Radiologist, St. Bartholomew's Hospital, Rochester.
COLLA, F. L., M.B., B.Ch. Oxf., F.R.C.P., Pathologist to the London County Mental Hospitals.
DEED HILL, K., M.D., B.S. Lond., Resident Surgical Officer to the Kent County Ophthalmic Hospital, Maidstone.
VENTFIELD, W., L.R.C.P. & S. Edin., L.F.P.S. Glasg., Certifying Surgeon under the Factory and Workshop Acts for the Walton-on-Naze District of the County of Essex.
Leicester Royal Infirmary: RIDLEY, N. C., M.B. Lond., F.R.C.S. Eng., Consulting Ophthalmic Surgeon; BARTON, M. H., F.R.C.S. Edin., Hon. Ophthalmic Surgeon.
Manchester Royal Infirmary: SUTHERLAND, D. McKAY, M.D., Ch.B. Manch., F.R.C.S. Eng., Resident Surgical Officer; BUCKLEY, G. H., M.B., Ch.B. Manch., Assistant Resident Surgical Officer; CUBITT, BARBARA, M.B., B.S. Lond., Resident Medical Officer (Central Branch); and HICKSON, S. K., M.B., Ch.B. Manch., Assistant Registrar, Electrocardiograph Department.
St. Mary's Hospitals, Manchester: KILROE, J. S., M.B., Ch.B. Manch., BEGG, E. C., M.B., Ch.B. Manch., and HULME, J. W., M.R.C.S., L.R.C.P. Lond., House Surgeons at the Whitworth-street West Hospital.

Vacancies.

For further information refer to the advertisement columns.
Bedford County Hospital.—H.S. £175.
Chelmsley Royal Hospital, Lambeth-road, S.E.—Consulting Radiologist, 100 guineas.
irkenhead Borough Hospital.—Jun. H.S. £150.

Bradford Royal Eye and Ear Hospital.—Hon. Ophth. S.
Brighton County Borough Sanatorium.—R.M.O. £300.
Cambridge, Addenbrooke's Hospital.—H.S. £130.
Cornwall County Council.—Deputy Tub. O. £50.
Ebbw Vale Education Committee.—Ophth. S. 7 guineas per session.
Gloucestershire Royal Infirmary.—Hon. Radiologist. Asst. S.
Great Farnmouth Hospital.—H.S. £150.
Infants' Hospital, Vincent-square, Westminster.—H.P.
King Edward VII. Sanatorium, Midhurst, Sussex.—Second Asst. M.O. £250.
London County Mental Hospital Service.—Seventh Asst. M.O. £440.
London Hospital, Whitechapel, E.—Med. Regs. Each £365.
Macclesfield, Cheshire County Mental Hospital, Parkside.—Locum Tenens A.M.O. £10 10s. weekly.
Maidstone, Kent County Ophthalmic Hospital.—H.S. £250.
Manchester, Ancoats Hospital.—Surg. Reg. £100.
Manchester Ear Hospital, All Saints.—Pathologist. £25.
Middlesex Hospital, W.—Radium Officer. £300.
Mount Vernon Hospital for Tuberculosis, &c.—Surgeon Laryngologist.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Senior H.P. £150.
North Ronaldshay, Orkney.—Med. Pract. £400.
Pendleton, Infectious Diseases Hospital, Ladywell Sanatorium.—Asst. R.M.O. £320 14s.
Royal Chest Hospital, City-road, E.C.—P.
Royal Northern Hospital, Holloway, N.—H.S.'s. £100. Cas. O. £150.
St. Mary Abbot's Hospital, Marlborough-road, Kensington, W.—Locum Tenens. 5 guineas weekly.
Salford Union Infirmary, Hope, Pendleton, near Manchester.—First Asst. Res. M.O. £400.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.S. for Ear, Nose, and Throat. £150.
South Mimms, Barnet, Clare Hall Sanatorium.—Asst. M.O. £350.
South Wales Sanatorium, near Talgarth, Breconshire.—Second Asst. Res. M.O. £200.
Wakefield, West Riding Asylum.—Jun. Asst. M.O. £400.
Western Dispensary, 38, Rochester Row, Westminster, S.W.—Vacancy on Medical Staff.
West London Hospital, Hammersmith-road, W.—Hon. Med. Radiologist.
Wilkesden General Hospital, Harlesden-road, N.W.—Hon. P.
Wolverhampton and Staffordshire General Hospital.—Res. Cas. S. £250.
 The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Burton Latimer (Northants).

Births, Marriages, and Deaths.

BIRTHS.

HANDFIELD-JONES.—On April 29th, at Ashworth-mansions, W., the wife of R. M. Handfield-Jones, M.C., M.S., F.R.C.S., of a son.
WOODWARK.—On April 27th, at 4, Harley-street, W., to Hilda, wife of A. S. Woodwark, C.M.G., C.B.E., M.D., F.R.C.P.—a son.
YEOMAN.—On April 29th, at 10, Duchy-road, Harrogate, to Dr. and Mrs. W. Yeoman—a son.

MARRIAGES.

BANKS—HOGG.—On April 25th, at St. George's, Hanover-square, Harry Banks, F.R.C.S., to Jessie, youngest daughter of the late Captain Hogg and Mrs. Hogg, Crouch-hill, London.
BOYCE—O'KINEALY.—On April 18th, at the British Consulate, Monte Carlo, Charles Boyce, M.D., to Winifred Mary O'Kinealy (widow of Capt. James O'Kinealy, R.A.), of Compton Cottage, Canford Cliffs, Dorset.
HILLMAN—MILLER.—On April 23rd, at Christ Church, Lancaster Gate, Oscar Stanley Hillman, M.B., F.R.C.S., to Ethel Florence Miller.
MACDONALD—PAUL.—On April 18th, at St. Luke's, Holloway, Donald Macdonald, M.A., M.B., to Emily Lever, only daughter of Mr. and Mrs. Alex. Paul, late of Bebington, Cheshire.
MULLIGAN—TAYLOR.—On April 25th, at Davos, Michael John Mulligan, M.B., D.P.H., to Lilian Ellen Veronica, only daughter of the late Mr. and Mrs. Charles Taylor, of Heswall, Cheshire.

DEATHS.

KILLICK.—On April 27th, at his residence, Spring Bank-place, Bradford, Charles Killick, M.D., F.R.C.S., aged 48.
MURPHY.—On April 27th, at Bentinck-terrace, London, N.W., of influenza and bronchitis, Lieut.-Colonel Sir Shirley Forster Murphy, K.B.E., F.R.C.S., aged 74 years.
N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE PREVENTION OF CONGENITAL SYPHILIS.*

By J. H. SEQUEIRA, M.D., F.R.C.P. LOND.,
F.R.C.S. ENG.,

PHYSICIAN TO THE SKIN DEPARTMENT AND LECTURER ON
DERMATOLOGY AT THE LONDON HOSPITAL, ETC.

THE problem of the prevention of congenital syphilis is one of the most important in medicine, and I think we may reasonably venture to congratulate ourselves on the progress made towards its solution in recent years, and also to hope for material improvement in the near future. By congenital syphilis I mean infection of the embryo by the *Spirochæta pallida* up to and including birth. I prefer the term "congenital syphilis" to "hereditary syphilis" or "heredo-syphilis." Heredity implies some quality of the germ or sperm-plasm which becomes manifest as the embryo develops. While I do not deny that some such influence may result from spirochætal infection of one or both parents, there is no evidence that the conditions now under consideration are produced except by the fortuitous introduction of living spirochætes into the embryo while in utero or in its passage through the genital canal during parturition.

Unlikelihood of Paternal Infection.

You will realise at once that I look upon congenital syphilis as due to maternal infection. I am aware that some high authorities, particularly those of a past generation, have maintained that paternal infection of the embryo without infection of the mother is possible, but all recent investigation tends to show that if such infection occurs it is so rare as to be a negligible factor in the problem presented to us. My reasons for dismissing "paternal syphilis" from the purview of this discussion are:—

1. The *Spirochæta pallida* in the spirillar stage in which we recognise it clinically is too large to be contained in the head of the spermatozoon.
2. Even if there be a spore stage of the organism it is difficult to believe that it could be contained in the sperm-cell without being lethal.
3. The blood of the mothers of definitely syphilitic children, examined soon after the birth and up to the sixth month, gives a positive reaction in 95 per cent., a percentage which closely approximates to that found in acquired syphilis in the secondary or generalised stage.
4. The fact that a woman may have syphilitic children by a first husband, and apparently healthy children by a second, is of no value as evidence of paternal syphilis in the absence of serological tests of mother and infants. We have had several instances of children with positive Wassermann reaction (W.R.) alternating with children with negative W.R. of the same parents.

Date of Infection.

The results of infection by *Spirochæta pallida* vary with the date at which the organism invades the embryo. When the embryo is attacked early it will early succumb. Syphilis is the cause of from 15 to 20 per cent. of all miscarriages and stillbirths. The later the infection the more chance the embryo has of surviving. On rare occasions a living infant may be born with evidence of congenital syphilis, but it is a remarkable fact that in the large majority of instances the child at birth appears to be quite healthy, and that the clinical manifestations of disease do not appear for from three weeks to two months, and, rarely, later. In a few instances a bullous eruption may appear a few days after birth, and in such cases the infant rarely survives. Late manifestation of congenital syphilis affects the eyes, ears, bones, viscera, and, occasionally, the skin and adjacent mucous membranes, and the nervous system. That infection may take place during parturition has long been held; Dr. Eardley Holland has seen a case of primary chancre in an abrasion produced by forceps, and Lomholt has published two cases occurring in maternity clinics in Denmark. How the fetus in such cases escaped infection while in utero affords an interesting problem in immunology.

Preventive Measures.

The prevention of congenital syphilis resolves itself into two parts—(1) prevention of infection of the mother, and (2) adequate treatment of the syphilised woman before or during pregnancy.

Prevention of Infection of the Mother.—1. Any measures, moral or medical, which prevent the spread of syphilitic

infection must of necessity diminish the amount of congenital syphilis. Those of us with a somewhat lengthy experience must have recognised the diminution of congenital syphilis in the clinics. This is not by any means due to a diminution in the amount of venereal infection generally, but to the fact that syphilis is recognised earlier and better treated. Moreover, in the more highly-educated classes the proportion of syphilis among married women is very low. With the spread of knowledge of the dire results of this infection men will not marry unless they are assured that there is no danger of transmitting the disease to a wife or offspring. Unfortunately, cases do occur, but in many of them the man has believed himself free from infection at the time of marriage, and in some instances his medical adviser has been to blame. In my experience it is quite common for the husband's infection to occur at a later date from post-marital irregular sexual intercourse. Such irregularities are not uncommon in all classes, often during the later months of the wife's pregnancy or during her lying-in. Hence, we find a healthy child or children, followed by a series of miscarriages or stillbirths, or the birth of infected living children. It is obvious that a man who has thus contracted disease must be treated at once and adequately, and must abstain from sexual relations until pronounced free from infection.

2. Adequate Treatment of the Syphilised Woman Before or During Pregnancy.—Here, at the outset, we are met with a great difficulty. Many women suffer from syphilis without any knowledge of the fact. The primary lesion on the genitalia is often inconspicuous and causes little or no discomfort. It may be on the cervix uteri and cause no clinical symptoms. There may be a complete absence of secondary manifestations, and yet she may have a series of miscarriages or stillbirths, or bear living children which show sooner or later evidence of grave spirochætal infection.

I do not purpose to enter into any discussion of this remarkable absence of evidence of disease, but I would once again point out that the blood of such a woman will in 19 cases out of 20 give a positive W.R. We can prevent a great deal of congenital syphilis by examining the blood of every woman who has had a miscarriage or stillbirth, and if the W.R. prove positive by carrying out anti-syphilitic treatment which should be continued during subsequent pregnancy. At the same time the husband should be induced to come up for a blood examination and in his case also adequate treatment should be insisted upon. We have had most gratifying results in a large number of cases dealt with in this way, and when the treatment has been properly carried out later pregnancies have resulted in the birth of healthy, non-syphilitic infants.

A further development on these lines has been the routine examination by the W.R. of all women attending the ante-natal clinic. But here I have to introduce a note of warning—of 700 primigravidae attending the London Hospital Ante-natal Clinic, 19 were found to give a positive W.R. In some of these there was other evidence of syphilis, and wherever possible the husband was induced to have his blood also examined. But the number is too small to be of practical value. We have, however, met with cases in which we have no doubt there was no syphilis. In one instance in particular the woman died and a very complete autopsy showed no evidence of syphilis in her or in the fetus. The father was serologically and clinically free from disease. The fact that occasionally a normal pregnant woman's blood may give a strongly positive W.R. is established. So far our figures are not large enough to make a strong statement of the proportion, but I believe it is not more than 1 per cent. This is confirmed by the experience of Fordyce and Rosen, who state that from 25 to 35 per cent. of the patients referred to the Vanderbilt Clinic by maternity hospitals because of a strongly positive reaction with cholesterinised antigen alone give a negative reaction with all methods when they report several weeks after delivery, and remain negative in repeated examinations. We have, therefore, decided that it will be wise not to give anti-syphilitic treatment to pregnant women who give a positive W.R. without any history of miscarriage, stillbirths, or syphilitic children, if there is no other evidence pointing to syphilitic infection. Such patients, of course, must be carefully watched during their pregnancy and the blood test should be repeated, and, wherever possible, the blood of the husband should be examined.

Conclusions.

Congenital syphilis can be prevented:—

1. By early and complete treatment of every case of acquired syphilis both in the male and female.
2. Marriage should be forbidden until a condition of non-infectivity has been attained. From experience I am of opinion that this obtains if a person has had adequate anti-syphilitic treatment, and is free from all clinical evidence, and whose blood has been negative for two years. Some observers would also include an examination of the

* Abstract of a lecture delivered at the Royal Institute of Public Health, March 14th, 1923.

cerebro-spinal fluid. There remain some cases where the patient has had antisyphilitic treatment over a long period and the blood persistently gives a positive W.R. In such cases there can be no certainty, and the risk, though possibly slight, must be explained to the patient.

3. It would be advisable to obtain a W.R. in every prospective mother, bearing in mind the special points mentioned above.

4. Every mother who has a positive W.R. and whose clinical history, or history of miscarriages, stillbirths, or of syphilitic children shows that she is syphilitic, should receive antisyphilitic treatment during each subsequent pregnancy. If the treatment is thorough such pregnancy will certainly result in the birth of a healthy child. I specially lay stress on each subsequent pregnancy, as I have known instances where a healthy child has been born as the result of treatment during one pregnancy, but that subsequently an infected child has been born owing to reliance being placed on the previous treatment.

5. Every infant born to a syphilitic parent should be examined by the W.R. at regular intervals up to the second year.

6. With the view of preventing the development of late congenital syphilis we are in the habit of examining as far as possible all the children of a syphilitic parent by the W.R., and have thus been able to discover a large number of cases in which disease has been latent and unrecognised.

PUBLIC HEALTH IN BOMBAY.¹

The population of Bombay at the census of 1911 numbered 979,445; according to the provisional figures for the 1921 census, taken on March 18th, the population was 1,172,953; in the health officer's report the statistical ratios had necessarily to be calculated on the basis of the 1911 enumeration, and these ratios must accordingly be understood as over-statements of ratios of births, deaths, and disease prevalence. The birth-rate in 1920 was 20.14 per 1000, as compared with 21.16 in 1919, and 21.51 in the quinquennium (1915-19); but on account of the large number of births unregistered (as shown by infants vaccinated), Dr. J. E. Sandilands, executive health officer, the author of the report for this year, considers that the correct rate should be 27.53 per 1000. As usual there were wide variations among the different races that compose the population of the city; for Hindus, who form the majority (684,502) the birth-rate was 19.48; varying from 4.98 among Jains and 8.81 among Brahmins to 58.74 in those of "Low Caste," and 100.08 among the small community of Lingaits. For Mussulmans and Negro Africans the ratio was practically the same (19.77). For Parsees it was 26.27, for Anglo-Indians 26.74, and for Indian Christians 23.64; for "Europeans" 14.04. All these birth-rates are lower than in the previous year, except for Lingaits, Parsees, Jews, and Europeans, which show a slight increase, and that for Anglo-Indians, which is exactly the same. A comparison of the ratios in the different sections of the city shows remarkable variations; while in Fort South and Market sections the ratios were only 9.24 and 7.58 per 1000, in Upper Colaba and Byculla they were 47.52 and 59.68. Dr. Sandilands, however, states that "these ratios cannot be of much value for purposes of comparison, owing to the uneven distribution of single and married women of fertile age, which accounts in some measure for the remarkable differences in the rates recorded." The variation is, however, certainly remarkable.

The General Death-rate.

The general death-rate was 46.80 per 1000; in the previous year it had been 70.04; in 1918, 59.61; and in the decennium 1910-19, 39.56; of the whole population 79 per cent. live in one-room tenements. Here, again, the ratios varied enormously; in the section called "Harbour, Docks, Railway, and Homeless" (with a population of 44,979) the mortality was 3.35 per 1000, practically the same as in the preceding quinquennium (3.86), while in Upper Colaba (population 1557) it was 84.13 (and 82.20 in the quinquennium); this ratio may possibly be explained by deaths in hospitals in this section, which should, of course, be debited to the dwelling of the patient, if the address is known. The infantile mortality (552 per 1000 live births) was less than that of 1919 (653), but higher than the decennial average (439); of the total 10,896 deaths under one year, 3873 were due to respiratory diseases, and 3549 to congenital debility and premature birth. A number of infants who die in the city are either not born there or not registered; for this reason the ratios in the case of Jains and Brahmins (3862 and 1014) are absurd, but "unfortunately other figures in the table, which are reliable, tend to show that the actual as well as the apparent infantile death-rate in Bombay must be one of the highest in the world." There are few poor among the

Parsees, and their standard of education is high, yet the infantile mortality was 199 per 1000 births. Among Europeans the ratio was 311. (For the 96 great towns in England and Wales, including London, the infantile mortality in 1920 was 85 per 1000 births, in the metropolis alone it was 75.) After making all allowances, Dr. Sandilands is of opinion that the ratio cannot be estimated at less than 400 per 1000 births. Naturally there is great variation in the incidence in the various sections in the city; thus, in Fort South the ratio was only 250 and in Walkeshwar 335.6, while in Byculla it was 725.7, in Mandvi 990.5, and in Market 995.6; the actual numbers in the last two sections were 344 and 228 respectively, but it is stated that the high ratios "must be taken as in some considerable measure due to the non-registration of births in the sections." Of the whole number of births 75.8 per cent. occurred in "families living alone in a single room or sharing it with others," and among these the mortality was 631.1 per 1000 births; this, however, is a considerable improvement on the 1919 ratio, which had been 831.3 per 1000 births. Much has been done to reduce this excessive mortality by house visiting to find out prospective mothers and give advice, attendance on confinements, and provision of necessaries and comforts; maternity homes, infant milk depôts, and infant welfare centres have been established. As many as 23,365 visits were paid by municipal nurses and 1252 confinements were attended by them.

Epidemic Diseases.

In regard to epidemic diseases, it is noteworthy that 1920 was the first year since 1896 during which there was no epidemic of plague; there were 347 attacks and 282 deaths, the mortality being 0.28 per 1000, as compared with 1.25 for the preceding quinquennium. In Middle and Lower Colaba section there were 30 fatal cases (1.52 per 1000, against 4.37 in the quinquennium); in no other section did the mortality exceed 0.60 per 1000 (except Parel, 0.63), and in Upper Colaba and Chowpati there were no fatal cases at all. Inoculation, rat destruction, evacuation, and disinfection were carried out systematically and with success. Small-pox caused 294 deaths, or 0.30 per 1000, compared with 0.79 in 1919 and 0.70 in the quinquennium; in Girgaum and Mahalakshmi sections the ratios were 0.87 and 0.76; in Upper Colaba, First Nagpada, and Sewri there was not a single death. Of the 48 infants who died from this disease, 40 were not vaccinated; the vaccinal condition of the remaining eight could not be ascertained. Of the 19,731 infants whose births were registered, only 57.64 per cent. were vaccinated. Of the 18,008 Mahomedan pilgrims who embarked for the Mecca pilgrimage, 16,909 were vaccinated before leaving Bombay. In 1919 there had been 9658 cases of cholera in the city, of which 8455 were fatal, giving a death-rate of 8.63 per 1000; the sections most affected had been Parel and Sewri, with ratios of 22.27 and 20.29 respectively. In 1920 the cases numbered only 195 (of which 145 were imported) and the deaths 119, the ratio per 1000 being 0.12, 72 of these occurred in Esplanade section (4.53 per 1000); in no other section did the ratio exceed 0.16 (Sion), and in 11 sections there was not a single death. No testimony could be more conclusive than these figures as to the efficiency of the public health service under most difficult circumstances. Influenza was prevalent throughout the year, and 1605 deaths (1.63 per 1000) were attributed to this cause; in 1919 the ratio had been 1.98, and in 1918 4.04. Tuberculosis caused 1841 deaths (1.87 per 1000), of which 1631 were due to phthisis; this was a considerable improvement on the preceding year (2.83), and on the decennial average (2.39); the highest ratios (9.62 and 8.34) were registered in Esplanade and Upper Colaba sections; the lowest (0.20) both in Sewri and in Harbour and Docks sections. Among Hindus generally the ratio was 1.61; among Mahomedans 2.83, and for Anglo-Indians 4.05. A tuberculosis sanatorium has been opened on Bhoiwada Hill at Parel, where 114 cases were under treatment, of whom 69 were discharged and 22 died. For ague and remittent fevers 3216 deaths were registered, and in addition 311 deaths from "malaria," under which heading other fevers may very likely have been included; the mortality ratios were 3.28 and 0.31 per 1000 respectively. For the quinquennium 1915-19 the corresponding ratios had been 3.02 and 0.23. For malaria, and ague, and remittent fevers collectively (3.59 per 1000), the death ratios in the Ward sections of the city varied from 1.44 in Fort South and in Chukla to 9.28 in Sion and 10.06 in Sewri; in regard to race, for Hindus generally the combined ratio was 4.01, for Mahomedans 3.57, for Parsees 1.01, for Anglo-Indians 0.23 per 1000. It is obvious that these wide variations in incidence depend on local conditions, and are not attributable to the climate. An investigation was carried out as to the condition of the spleen in children in various poor class houses and charitable institutions; 6614 children were examined, with the result that splenic enlargement was found in 4.41 per cent., the ratio varying from 0.79 per cent. in Chowpati section of Ward D to 12.47 per cent. in Worli section of Ward G.

¹ Administration Report of Municipal Commissioner, 1920-21. Health Officer's Report for 1920. Bombay Times Press. 1921.

Among 9442 boys attending municipal schools in the city who were examined, the ratio was found to be 4.23, and among 4549 girls 6.57 per cent. Almost all the cisterns in the city have been rendered mosquito-proof, but the covers provided are frequently left open.

Water-Supply and Housing.

There have been difficulties in regard to the water-supply of Bombay for some considerable time past; the quantity available from Tansa lake (some 50 miles north-east, near Atgaon station on the G.I.P. Ry.), and from Vehar lake (in Salsette Island, 25 miles north) has been found to be insufficient; to remedy this a third pipe line from Tansa lake is in course of construction. As to drainage, also, the sewers have been found incapable of carrying off the quantity of sewage during the rains; with increase of water-supply this difficulty will, of course, be aggravated. "These defects will be remedied when the construction of the new main sewer outfall has been completed." There are still 13,704 basket privies in use. Housing conditions are bad; "in the congested areas of the city houses four or even five storeys high will be found attached on either side and separated from a similar row of houses by a gully of less than 6 feet in width, which takes the overflow from privies." Steps have been taken to remedy this state of affairs; some 6000 tenements will shortly be under construction, and later on another 13,000 will be provided under the Worli scheme of the Improvement Trust. (Worli is on the west of the island some four miles north of Malabar Hill.)

Vaccination.

Dr. N. H. Choksy, reporting on the work of the Arthur-road Hospital, gives a very interesting and instructive table showing the influence of vaccination on the fatality of small-pox, compiled from the statistical records of 33 years. Among 6064 unvaccinated small-pox patients the case mortality was 35.7 per cent.; among 7413 patients who had been vaccinated the ratio was 14.5 per cent. During the last 12 years (1909-20) among the unvaccinated patients the case mortality varied from 26.6 per cent. in 1917 to 42.2 per cent. in 1909; in those vaccinated, from 10.0 per cent. in 1919 to 19.2 per cent. in 1914. Among 91 children under 10 years old admitted with small-pox in 1920, the case mortality in 54 unvaccinated was 35.2, among 37 vaccinated 5.4 per cent.

At the Maratha Plague Hospital there were only 123 admissions for plague, these being fewer than in any year since the outbreak of the disease in 1896; the case mortality was 64.2 per cent. Dr. Choksy obtained the best results with colloidal preparations of iodine; with this treatment in 260 cases the fatality was 59.9 per cent.

This report is fully illustrated with diagrams and tables; a sketch plan, showing the district areas of the city as at present existing, would be an acceptable addition.

BARTHOLOMEW FAIR.

In connexion with the celebration of the 800th anniversary of the founding of St. Bartholomew's Hospital, on June 5th-8th, there will be a revival, after nearly 100 years, of the great City Fair of London, Bartholomew Fair. The fair originated in the permission given to Rahere by Henry, King of the English, to hold a cloth fair to assist the erection and maintenance of the hospital he was building on the site where it now stands. The Hospital and the Priory Church drew a concourse of pilgrims to Smithfield, and through the crowds thus assembled the fair grew in strength and importance. The students of St. Bartholomew's Hospital to-day have selected the Tudor period as being the one which illustrates Bartholomew Fair at the zenith of its existence, and the revels, contests, and sports which characterised the fair at that period will be reproduced this year. The Lord Mayor of London will open the fair. Gifts for the fair will be welcomed, and should be addressed to the Matron, St. Bartholomew's Hospital, E.C. 1, and marked "Bartholomew Fair."

"PEG NICHOLSON'S KNIGHTS."

To the Editor of THE LANCET.

SIR,—Dr. Hingston Fox, in his interesting address to the Hunterian Society, reported in THE LANCET last week, refers to the fact that Sir William Blizard received his knighthood while he was first president of that society. May I add a note as to the circumstances under which Blizard received his honour?

The life of the King had been attempted by a mad woman, named Margaret Nicholson, who, with a knife in her hand, rushed at the King as he sat in his carriage. Arrested, the woman was sentenced to death by the Privy Council, but pardoned by the King and sent to a lunatic asylum where she lived several years. To congratulate the King upon his escape, every corporation of importance sent a deputation.

The head of each deputation was knighted. The Royal College of Surgeons sent its President, Mr. Blizard, who, by this means, received the accolade. Every gentleman so honoured became known as a "Peg Nicholson Knight."

May I add to this note a reference to the allusion you make to the handsome fee of 5000 guineas offered to Sir Andrew Clark by a patient who had gone to the Riviera. The gentleman, a man of great wealth, retained Sir Andrew Clark for a period of some six weeks and showed him the kindest hospitality. When the physician left, the patient offered him a fee of 5000 guineas. This Sir Andrew Clark declined on the ground that he had received so much comfortable hospitality during his stay. As he was leaving, however, the patient's wife put an envelope into his hand, saying, "As you would take nothing for coming to see my husband, give this to the London Hospital." The envelope contained a cheque for 5000 guineas.

I am, Sir, yours faithfully,

S. D. CLIPPINGDALE.

Malvern-road, Hornsey, N., April 30th, 1923.

HELLO, WEATHER PROGNOSIS!

DURING the present week an arrangement came into force by which the Post Office, in conjunction with the Air Ministry, communicates the daily weather reports to the telephone exchanges throughout the country. Any subscriber at the mere cost of a local call can now ring up his exchange after teatime and obtain a weather forecast for the following day. The Post Office hopes that the information may be of special benefit to farmers and other residents in rural areas. No doubt the accuracy of weather forecasts is greater when pooled over a sufficiently large area, but they have, we fear, hardly arrived at the stage of exactitude to determine a practitioner whether or not to take out his closed car or to determine a patient whether it is safe to leave umbrella and macintosh at home. Individual prognosis is difficult and can hardly be said yet to be completely solved whether for medicine or meteorology.

HEALTH POSTERS.

OUR contemporary, the *Guy's Hospital Gazette*, does not despair of posterizing the nation into health as a post-war occupation analogous to the posterizing into patriotism and posterizing into thrift of pre-war and war times. Substantial prizes are offered to be competed for by readers of the *Gazette*, for the best sentences suitable for a Health-First campaign. Mr. Frank Bryant, J.P., M.P., Colonel F. E. Fremantle, M.P., F.R.C.S., and Dr. Lauriston E. Shaw have consented to act as judges. The whole of the prize-money has been donated, and the surplus entrance fees, after allotting £13 (in certain contingencies) to augment the prizes, will be paid over as a contribution to the hospital. It is pleasant to find a competition to which no exception can be taken.

THE TREATMENT OF DISEASE ON COMMISSION.

A CORRESPONDENT, who is an analyst and consulting chemist, sends us the following letter (undated) which has just reached him:—

SIR,—I am enclosing you my booklet; it will give you some idea how I treat disease. My fee for consultation is £2 2s.; subsequent fees according to the number of visits. I am prepared to give you 25 per cent. commission on any patients you may send me—cash down as soon as received by me. When recommending clients, please give them your card that I may know by whom they are sent.

Thanking you in anticipation,

Yours faithfully,

J. LANGDON-LANGDON.

Diploma U.S.A., Physio-Medical Specialist.

Our correspondent had supposed that the "American Diploma" was a thing of the past. It appears not.

A GENERAL PRACTITIONER'S CARD INDEX.

WE have received from Messrs. H. K. Lewis and Co., Ltd., specimen cards and particulars of a card index system for book-keeping and case-taking which seems to constitute a simple and convenient means of dealing with these sides of a general practitioner's work. The book-keeping card combines day-book and ledger, and will last for one or several years, according to the number of entries made. A second card provides a morning and evening temperature chart, arranged for four weeks, based on the Rigden clinical chart. A third card holds case records, with space for recording number, name, age, sex, date, address, and occupation, and for notes of the case. The fourth card is a blank for continuations. A cabinet is supplied for holding the cards; the latter can be perforated for insertion in a holder to be carried on the day's round. Specimen cards with details of prices of cabinets and holders will be sent to any medical practitioner on application to Messrs. Lewis, at 136, Gower-street, London, W.C. 1.

A Discussion

ON

ULCERATIVE COLITIS.

Opening Paper at a Meeting of the Proctological Sub-section of the Royal Society of Medicine on May 9th

By SIR HUMPHRY ROLLESTON, K.C.B.,

M.D. CAMB., D.C.L., LL.D.,

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON;
EMERITUS PHYSICIAN, ST. GEORGE'S HOSPITAL, LONDON.

THE subject of chronic ulcerative colitis, though mentioned in Wilks and Moxon's "Lectures on Pathological Anatomy" in 1875, owes its recognition in great measure to the writings of Sir William Hale-White, the President of this Society, who gave the first of his several descriptions of the condition in 1888. There was a discussion at the Section of Medicine of the Royal Society of Medicine in 1909, with statistics of 312 cases so diagnosed in the hospitals with teaching schools in London. In 1911 simultaneous discussions on colitis were held at the Harveian Society and at the Chelsea Clinical Society. It is a disease on which British physicians have made the great bulk of the contributions. The question naturally arises whether, in the years since these discussions, any important advance in our knowledge has been made. From the bacteriological and medical points of view it must be admitted that there is little to say. From the diagnostic standpoint the increasing appeal to the sigmoidoscope is important, and as regards treatment, the increasing stress laid on the value of appendicostomy is the most noticeable feature.

SCOPE OF THE TERM.

In introducing a discussion it is important to define its scope, and in this instance it is somewhat difficult to limit the field. By a process of exclusion, some idea may be arrived at; it will be agreed that many forms of ulceration of the colon may be eliminated as not coming within the meaning of ulcerative colitis. Thus exogenous ulceration due to an abscess rupturing into the bowel—e.g., an appendix abscess, malignant ulceration, stereoral ulceration, diverticulitis, typhoid and paratyphoid, "uræmic," and tuberculous ulceration, bacillary and amœbic dysentery—may be counted out. Ulceration due to acute colitis of known toxic origin, such as that due to corrosive sublimate poisoning, and the various forms of parasitic colitis and of infective proctitis of local origin and extent should not be included in ulcerative colitis. The ulceration exceptionally found in pneumonia and after accidents (those causing paraplegia having suggested a trophic disturbance) should also be excluded. A few words should be added about what was formerly known in this country as the ulcerative colitis of asylums and in America as institutional dysentery. Early in this century Vedder and Duval (1902) in America, and in this country Mott and Durham (1901) and Eyre (1904), showed that it was bacillary dysentery, thus confirming Gemmel's view (1898). Sir Frederick Mott has most kindly provided me with information as to the present position of knowledge of this disease in the London County Council Asylums; since the term "colitis" and the idea that it was a non-infectious disease due to trophic changes have been given up, the type of disease has altered so that severe and acute cases are less frequent. Outbreaks are almost certainly due to the presence of chronic carriers, and his assistant, Captain A. S. Mann, who has done much serological work on the subject, finds that the responsible organism is type X of the Oxford series of Flexner dysentery organisms. It appears advisable to exclude from the group of cases that may for convenience be called ulcerative colitis, the cases often arising in epidemic form in asylums, and to confine our attention to the sporadic cases seen in the ordinary

civil practice which are not, from a laboratory point of investigation, bacillary dysentery.

Bacteriologically ulcerative colitis is not a specific disease, for numerous organisms, *B. coli*, coliform organisms, *B. pyocyaneus*, pneumococci, and streptococci may appear to be the predominating and causal agents. A bacteriological diagnosis is comparatively easy in the acute stage, difficult when the condition has become chronic. The opportunities for secondary infection in the colon are most favourable, and it is probable that ulceration of the colon, originally due to one micro-organism, may be kept up by the combined attack of different bacteria, or to successive varieties or strains of pyogenic cocci. Lockhart-Mummery in 1911 drew attention to the gravity of cases of ulcerative colitis following tropical dysentery in which the original infection has died out. It is indeed difficult to be certain that the original infection has entirely disappeared; for although the stools may not give any evidence of amœbic or bacillary dysentery, the organism may still be present in the walls of the colon. Dr. J. W. McNee has shown me a specimen of the colon with *Entamoeba histolytica* in the blood-vessels from a man who had never been out of England and presented the symptoms of ulcerative colitis with absence of *E. histolytica* from the stools. It is not surprising that in such cases specific treatment, for example, emetine for latent amœbiasis, may fail to be curative, just as iodides may prove disappointing in an actinomycotic lesion with secondary streptococcal invasion. Further, ulceration of the colon is often a stage in an acute or chronic inflammation of the bowel, and not, as far as is known, a process due to the advent of a special micro-organism. The acute phase, as in hæmorrhagic colitis, may pass off or prove fatal before ulceration is established (vide Grant). It must indeed be admitted that ulcerative colitis is not a disease in the strict sense of the word, any more than rhinitis or bronchitis is, but that it is a syndrome with fairly constant clinical manifestations and anatomical changes, which may be excited by different factors.

ÆTIOLOGY.

As the causes favouring infection of the colon and widespread ulceration are obscure, reference may be made to McCarrison's and Findlay's observations showing that a devitaminised diet renders animals less resistant to infection; thus, McCarrison found that healthy monkeys, carriers of *Entamoeba histolytica*, may, as the result of a deficient diet, develop amœbic dysentery, and in an infected area organisms of the hog cholera group attack pigeons on a devitaminised diet and spare those properly fed. Diminution or deprivation of the water-soluble vitamin B, such as occurs in food consisting of excess of starch and fats, favours infection. The whole alimentary tract of the experimental animals shows atrophy and necrosis; and acute colitis but not ulcerative colitis was described. It is, however, easy to understand that in man a diet deficient in protein and water-soluble vitamin B might so reduce the healthy resistance of the mucous membrane of the colon that micro-organisms previously harmless, such as *B. coli*, would become pathogenic; in short, the carrier would become a patient. It is also conceivable that changes in the mucous membrane of the colon may so alter their environment that bacteria unable to multiply in ordinary conditions would grow without inhibition, in other words, that the intestinal flora would change. Bassler speaks of a coliform organism of enhanced virulence as the *B. pseudodysentericus coli*. Nearly 30 years ago the late Leopold Hudson suggested that swine fever and ulcerative colitis might be identical, and quoted a few instances in which the disease had followed the consumption of pork. He pointed out similarities between the morbid lesions and the clinical manifestations in the two diseases. Prof. F. Hobday tells me that no definite proof has as yet been brought forward in support of any connexion between these human and swine diseases.

COMPLICATIONS.

Is the incidence of perforation lower now than it was formerly in this country? Among 16 cases selected from those recorded in the *Transactions* of the Pathological Society of London (1885-1907) it occurred in five, and out of 33 fatal cases (probably including the above) collected in 1910 by Lockhart-Mummery, 9 showed perforation and general peritonitis; possibly some of the cases were published on this account; or has the type of the disease changed either from alteration in treatment or from less obvious causes? Among 22 selected cases of ulcerative colitis examined after death at St. George's Hospital between 1890 and 1922, Miss N. Schuster found four cases of perforation, two being in the "nineties" and two during the war; so far as this small group goes there does not appear to be any special alteration in the incidence of perforation. In very rare instances perforation is found after death with but little evidence of peritoneal response, and it is probable that the perforation was an agonal phenomenon when the reactive powers of the body were reduced to a minimum. In exceptional instances multiple perforations have been found. At the Mayo Clinic among 117 cases of chronic ulcerative colitis, which appear to have mainly followed dysentery, perforation was not uncommon and was a cause of localised abscess and not necessarily of general peritonitis. Hurst, on the other hand, found that localised abscess is exceptional and general peritonitis very rare, and that the latter when present is due to direct spread of infection through the walls of the colon and not to perforation. He states that stricture from cicatrization of the healing ulcers never occurs, and other experience in this country supports this conclusion; among the 16 selected cases from the Pathological Society there was one only in which any mention of narrowing is made; in that case the descending colon was described as much contracted and thickened; no stricture was found among the 22 cases analysed by Miss Schuster; Logan, however, definitely states that stricture is likely to occur. Possibly the nature of the Mayo Clinic cases are not exactly the same as those in this country. Arthritis, well recognised in bacillary dysentery, occurs in a small percentage of cases of ulcerative colitis. Among Yeoman's 65 cases arthritis or joint pains were noted in 4. Peripheral neuritis has also been noted. Ulceration in the small intestine is most exceptional.

CLINICAL FEATURES.

The sexes are equally affected, and the incidence falls chiefly on young adults and in early middle life; among Logan's 117 chronic cases 65 were under 30 years of age, and only 8 over 50. The onset may be sudden or insidious, and the course of the illness also acute or chronic. Acute colitis due to one micro-organism, such as the pneumococcus or streptococcus, or dysentery bacillus, may be succeeded by a chronic infection by a different bacterium. The first symptoms are usually those of colonic irritation—frequent stools, sometimes preceded by constipation. In the acute cases the temperature is raised; in chronic cases it is normal or even subnormal, except for elevations corresponding to exacerbations. The leucocyte count appears to vary; in some instances there is a leucocytosis, in others it is absent. As would appear probable (Price-Jones), on the assumption that there is a coliform infection, a lymphocytic increase has been reported (Horder, quoted by Hurst); but the blood picture would naturally differ with exacerbations and intermissions in the chronic form. Anæmia with 50 or even 20 per cent. of hæmoglobin is partly due to loss of blood, partly to toxins absorbed from the colon. The number of stools varies from 3 to over 20 in the 24 hours, but sometimes there are periods of constipation. The number of evacuations are less than in tropical dysentery, and tenesmus, which depends on the presence of ulceration low down in the rectum, inconstant; it occurred in one-third of Logan's cases. The excreta contain blood, pus, mucus, and sometimes sloughs of the mucous membrane. Onset with hæmorrhage has been correlated with the com-

mencement of ulceration low down in the colon (Hawkins). Abdominal discomfort is commoner than actual pain, the latter chiefly occurring before the bowels act or when there is much flatulence; local tenderness on deep pressure over the colon is variable. The importance of a sigmoidoscopic examination does not at the present day need emphasis; though it only provides information about part of the large intestine, that portion generally shows ulceration if it is present anywhere. The ulcers are indistinguishable from those of bacillary dysentery. Logan gives a number of skiagrams showing interference with the peristaltic waves which become lengthened, more superficial, with rounded instead of sharp edges, so that eventually the fibrosed colon appears as a thick-walled tube without haustrations, often with stenosis. Hurst describes mottling of the colon, which is often abnormally narrow from spasm. Appetite and digestion are fairly maintained, but loss of weight and weakness are induced by the diarrhoea and toxæmia. The mortality is high, about 50 per cent., and Lockhart-Mummery estimates that it reaches 78 per cent. when treated medically. The cases are prone to relapse. The chronic cases must be diagnosed from carcinoma, tuberculous and follicular ulceration of the colon, the sigmoidoscope being the obvious means of so doing.

TREATMENT.

Many methods of treatment have been employed.

Dietetic.—As the stomach and small intestine are practically always free from ulceration, and as digestion and absorption are fairly well carried on, it is unnecessary to restrict the diet to slops and soft food. As deficiency in the antiscorbutic vitamin C has been shown experimentally to reduce the resistance to infection (G. M. Findlay), and as McCarrison's observations suggest that lack of water-soluble vitamin B favours the incidence of inflammation of the alimentary canal, it would appear reasonable to arrange a diet containing a sufficiency of antiscorbutic food and a fair quantity of protein. Soured milk with living cultures of *B. bulgaricus* has naturally been given a trial, but Hurst did not find that it had any beneficial effect.

Drugs.—The large number of drugs employed is in itself a reproach to purely medical treatment. Intestinal antiseptics, such as salol, bismuth salicylate, β -naphthol, small doses of mercury or calomel, benzyl benzoate, gentian-violet, acriflavine, are on the whole disappointing. Pomegranate bark and simaruba have also been tried; and more recently of kaolin Logan remarks that it "was of no benefit whatever, although it is advised strongly by German writers." Finely powdered charcoal has been useful in reducing flatulence and obviating colic. Liquid paraffin by the mouth has been recommended as forming in the colon a coating in which bacteria cannot live (C. J. Macalister); and olive oil has been advocated both orally and by enemas (Logan). Lavage of the colon with antiseptics, such as boric acid, acetozone, argyrol, nitrate of silver, albargin (silver nucleinate), allantoin, emulsion of sulphur, has been much employed; but, as the whole of the colon cannot be thus satisfactorily cleaned, appendicostomy or cæcostomy has largely superseded rectal injections as an effective means of washing out the colon. Einhorn employs a "jointed intestinal tube" 15 to 20 ft. in length introduced by the mouth and carried, under the guidance of X rays, into the cæcum, where it is left in situ for days as a means of getting a result comparable to that of cæcostomy; this procedure is on its trial. The respective merits of appendicostomy and cæcostomy have been much discussed; when the appendix is obliterated or, for other reasons, cannot be found, a valvular cæcostomy can be made; but neither this procedure nor appendicostomy gives the colon the rest from the contact of faeces which an open cæcostomy or a colotomy does. In 1911 Sir D'Arcy Power took the cautious view that the improvement after appendicostomy was mainly due to the prevention of toxic absorption and keeping the bowel clean, and stated that the ulcerative

process continues until the patient becomes naturally or artificially (by means of vaccine) immune. Hurst considers that appendicostomy halves the time of illness that would be experienced under medical treatment, and surgical opinion is strongly in its favour. To give operation a fair chance it should be done before the patient is debilitated, and according to W. G. Spencer medical treatment should not be persisted in for more than three months. Short-circuiting the ileum into the pelvic colon has the serious drawback that the rectum is often affected; the radical means of providing physiological rest to the colon is a complete transverse ileostomy so as to exclude the colon; Stone recommends this in combination with a separate appendicostomy for irrigation of the colon.

Vaccines have been extensively employed; few reports are enthusiastic, and the difficulty of obtaining the causal organism is considerable, even with the help of serological reactions. An autogenous *B. coli* or coliform vaccine has usually been employed and should not be given during the acute exacerbations of this chronic infection, as the condition may thus be seriously aggravated. In 1909 H. P. Hawkins advocated anti-dysenteric serum, especially in acute cases, but without giving any statistics as to its value. In 1921 Hurst recorded very striking results from the intravenous injection of multivalent antidysenteric serum in two

patients who did not show dysenteric bacilli in their faeces. The healing of the ulcers as watched by the sigmoidoscope occurred in one of the cases in five days after the first injection of serum, and as the blood did not agglutinate any stock dysenteric organism, the question arises how far the curative action was due to the horse serum apart from its specific anti-dysenteric content.

REFERENCES.

- Bassler, A.: *Med. Rec.*, New York, 1922, ci., 227.
 Einhorn, M.: *Amer. Jour. Med. Sc.*, Phila., 1921, clxi., 546.
 Eyre, J. W. H.: *Brit. Med. Jour.*, 1904, ii., 1002.
 Findlay, G. M.: *Jour. Path. and Bacteriol.*, Edin., 1923, xxvii., 1.
 Gemmel: *Idiopathic Ulcerative Colitis (Dysentery)*, Baillière, Tindall and Cox, 1898.
 Grant, J. W. G.: *Brit. Med. Jour.*, 1923, i., 308.
 Hawkins, H. P.: *Ibid.*, 1909, i., 765.
 Hudson, L.: *Trans. Path. Soc.*, 1895, xvi., 334.
 Hurst, A. F.: *Guy's Hosp. Rep.*, 1921, lxxi., 26.
 Lockhart-Mummery, P.: *Diseases of the Colon*, 1910; *Brit. Med. Jour.*, 1910, ii., 948; *ibid.*, 1911, ii., 1685; *ibid.*, 1920, i., 497.
 Logan, A. H.: *Collected Papers of Mayo Clinic*, 1918, x., 180.
 Macalister, C. J.: *Brit. Med. Jour.*, 1912, i., 371.
 McCarrison, R.: *Studies in Deficiency Disease*, 1921, Oxford Medical Publications; *Brit. Med. Jour.*, 1920, i., 249, 822.
 Mott and Durham: *Report on Colitis or Asylum Dysentery*, 1901.
 Power, D'Arcy: *Brit. Med. Jour.*, 1911, i., 863.
 Price-Jones, C.: *Blood Pictures*, 1917, p. 46.
 Proc. Roy. Soc. Med., 1909, ii. (Med. Sect.), 59-156.
 Spencer, W. G.: *Medical Science*, London, 1919, i., 22.
 Stone, H. B.: *Ann. Surg.*, 1923, lxxvii., 293.
 Vedder and Duval: *Jour. Exper. Med.*, New York, 1902, vi., 181.
 White, W. Hale: *Guy's Hosp. Rep.*, 1888, xiv., 131.
 Yeomans, F. C.: *Jour. Amer. Med. Assoc.*, 1921, lxxvii., 2043.

THE TREATMENT OF LIVER ABSCESS BY ASPIRATION,

WITH AN ACCOUNT OF FIFTEEN CASES.

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AMOEBIIC abscess of the liver still ranks as one of the most dreaded of tropical diseases; until recently the open operation, as a means of evacuating the liver pus, dangerous and difficult though it may often be, has been universally considered the correct surgical procedure. Apart from risks attending the operation, the open method is apt to entail other consequences, such as a secondary bacterial infection of the sterile abscess cavity through the wound itself or through the drainage-tube, with ultimate sinus production or other unpleasant sequelæ. Even in the most practised hands the death-rate from the open operation must still be a pretty high one, though it has considerably diminished since anti-amœbic treatment has come to be regarded as a most necessary adjunct to surgical measures. The steps which have led to the more ready diagnosis of hepatic abscess, and consequently to a better understanding of its treatment, have recently been adequately reviewed by Rogers (1922).

Mortality from Hepatic Abscess.

It is difficult to procure exact figures bearing upon the mortality from the open operation, as, naturally, the risk to life varies under varying circumstances. The conditions under which the operation takes place naturally influence the result. European patients, for instance, stand a much better chance of recovery when subjected to operation in England than when exposed to the debilitating effects of a tropical climate. Then, again, in comparing figures due allowance must be made for native cases, for in them the mortality rate must be higher—applying, as they so often do, for treatment only when in extremis—

than in Europeans who usually seek medical advice directly symptoms manifest themselves.

According to Rogers, in the tables given in his "Bowel Diseases in the Tropics," the mortality in India and Mesopotamia from the open operation (native cases), even since the institution of anti-amœbic treatment, is still over 50 per cent. The death-rate, on the other hand, in a series of collected cases treated by the closed method—i.e., repeated aspiration—combined with medicinal treatment, is about 14.4 per cent. Other figures available read as follows: Tomes, in 1884, records a death-rate of 75 per cent. by the aspiration method and 31.6 per cent. by the open operation; in a large series of 300 cases, reported by Wildt in Cairo in 1904, the death-rate varied from 20-38 per cent.

Methods of Aspiring Liver Abscess.

The closed or aspiration method of evacuating liver pus is no new thing. As long ago as 1828 Annesley advised the evacuation of pointing hepatic abscesses by means of a trocar; in 1871 we find Maclean advocating the Bowditch syringe as a means of evacuating the fluid, but his outstanding contribution to this subject may be said to be his insistence upon the necessity of exhibiting large doses of ipecacuanha (20-25 gr. daily, or even more) in the treatment of the disease. His teaching had, however, been forgotten and has but recently been revived.

In 1879 Manson, in a private notebook, recorded a fatal case of hepatic abscess which he observed for over 60 days, and which he repeatedly tapped by means of a syringe, withdrawing over two pints of pus, but the cavity constantly refilled, so that he had to resort to continuous drainage. Failure in this case led him to devise (1883) the trocar and cannula which bears his name, and at this time we find him writing: "Not many years ago, to tell a patient he had abscess of the liver was nearly tantamount to telling him he was about to die. . . . But since the introduction of the aspirator, of the drainage-tube, and of Listerism, the prospects in this disease have enormously improved; at all events we need no longer stand by the patient with folded arms." He did not, however, realise at this time the necessity of exhibiting ipecacuanha at the same time as the operation. Others followed Manson's example, but eventually the practice seems to have fallen into disuse, possibly through lack of appreciation of Maclean's teaching.

Continuous aspiration or "tapping" was practised at this time by Veale (1882-3), and by Jessett (1885); the latter quotes one case which recovered after

16 tapplings in which a total of 400 oz. of pus was abstracted. In 1902 Rogers advocated repeated aspiration of hepatic abscess and injection of quinine in solution as an amebicidal agent, but was not at that time able to put his theories into practice; in 1906, together with Wilson, he recorded two successful cases treated by this method. In 1911 we find a more general adoption of aspiration in Calcutta, where 23 cases were recorded with four deaths, but we gather that re-accumulation of pus was also experienced, for nine cases had subsequently to submit to the major operation. Thurston, in 1914, critically analysed a series of 101 cases of liver abscess, and concluded that the routine exhibition of ipecacuanha or emetine in addition to aspiration reduced the death-rate from this disease considerably. Newman, writing at the same time, once more urged the importance of the open operation and free drainage, as being based upon sound surgical principles; aspiration, he insisted, was of use only in quiescent abscesses. Talbot, in 1919, recorded successful aspiration of 11 cases with no deaths in Mesopotamia during the war. The pus was drawn off by means of a 20 c.cm. syringe through the chest wall, but the importance of a thorough course of anti-amebic treatment as a complementary measure seems hardly to have been appreciated. Isolated cases treated by aspiration and emetine have been recorded in the literature by Rouget, Chauffard, Valence, and others.

Description of the Authors' Series of Cases.

In this paper we wish to describe a series of consecutive cases treated successfully in the last three years, during which period no other method of treating hepatic abscess has been adopted. Many of the cases were acutely ill on admission, yet there have been no deaths nor even supervention of any untoward symptoms following this simple operation. Moreover, we are satisfied that the method of aspiration, combined with medicinal treatment, adopted by us, presents many obvious advantages over the open exploratory method, which ranks certainly as a major operation.

Operation Technique.

1. An ordinary Potain's aspirator is sufficient. The needle should not be inserted to a depth exceeding $3\frac{1}{2}$ inches.
2. A reserve set of tubing and junctures in case of plugging with thick pus or blood-clot during operation is necessary.
3. When pus is struck by exploratory puncture, complete evacuation of the abscess cavity should at once be carried out as part of the same operative procedure.
4. Should the pus prove too thick for aspiration (Case 8), Manson's trocar and cannula can be inserted along the track of the aspiration needle, and a free evacuation of the abscess cavity thereby obtained.
5. *Site.*—No definite instructions can be laid down about the site of puncture; the site of election should be the point of greatest tenderness and swelling, should such exist. In the absence of any localising signs the routine procedure adopted by us has been (1) eighth interspace in anterior or mid-axillary line, (2) the epigastric route.
6. Without a general anaesthetic not more than three punctures at one time are advocated, but under general anaesthesia success has attended the search for pus after as many as six punctures.
7. Contrary to the usually accepted teaching, there appears to be no particular advantage in partial aspiration; in other words, as much pus as possible should be evacuated at one aspiration.
8. No special advantage seems to accrue from the injection of emetine or other amebicidal substances into the abscess cavity. Healing appears to take place without them.
9. The effusion of serum into the abscess cavity probably normally takes place and should be regarded as the natural method of repair. This must be con-

sidered as being quite a distinct process from a re-accumulation of pus (vide Case 2).

10. The risk of hæmorrhage after multiple punctures, although theoretically great, in practice appears to be of small import. Whenever possible, puncture of lung tissue should be avoided as increasing the risk of hæmorrhage.

The Choice of Anaesthetic.

1. In the great majority of cases general anaesthesia is to be preferred to local. When, however, definite localising signs are present and the position of the abscess is certain, or almost certain, or when the physical condition of the patient is such as to contraindicate the use of a general anaesthetic, then local anaesthesia can be resorted to, a 2 per cent. solution of novocaine with adrenalin being employed, and the skin and muscles (including the diaphragm, if necessary) must be infiltrated in the line of the puncture, but once the exploring needle has passed into the liver all risk of pain is over. *The passage of a stout needle through the liver substance is absolutely painless*; this was demonstrated in Case 3 when the abdomen was opened under local anaesthesia. But should this possibility not be suspected we have come to regard, as the result of our experience, a complaint of intense pain experienced by the patient during exploration under a local anaesthetic as not being suggestive of liver abscess, but as rather indicating the passage of the needle through some solid tumour, and in the latter contingency (malignant disease) we have noted that the small amount of blood withdrawn is also suggestive.

2. When, as the result of unsuccessful puncture, the possibility is suggested of the case proving to be one of malignant disease simulating abscess, then an exploratory laparotomy under general anaesthesia should be undertaken. Local anaesthesia possesses the advantage that, should the pus prove viscid and difficult of aspiration, continuous suction may be maintained for hours, if necessary, without causing any further discomfort or risk, such as would occur if prolonged general anaesthesia had to be kept up (see Case 3).

Details of Cases, with Remarks.

CASE 1.—B., 32, admitted on Jan. 17th, 1920, discharged Feb. 17th, 1920. Had amoebic dysentery in November, 1918; since then suffered from recurrent attacks of fever, pain in the right shoulder, persistent "dragging" epigastric pain, and, latterly, intermittent attacks of diarrhoea. On admission the temperature varied, sometimes up to 103° F.; the right hypochondrium was rigid, tender on pressure, and the liver definitely enlarged. Over the lower border of the liver the skin was raised and tense; the spleen just palpable. No *E. histolytica* cysts found. Hæmoglobin index 70 per cent.; red cells 3,300,000; leucocytes 22,000 (polymorphs 84 per cent.). On Jan. 27th, 1920, under general anaesthesia, the liver was punctured by means of Potain's aspirator in the anterior abdominal wall one inch to the right of the linea alba, an abscess was found, 20 oz. being withdrawn, and into the cavity 75 c.cm. of normal saline containing 3 gr. emetine were injected. The fever rapidly abated. Before discharge the patient had put on nearly 14 lb. in weight. Treated with emetine injections and with ipecacuanha powders, he has remained in good health ever since (1923).

A straightforward case in which the improvement following aspiration was immediate and permanent.

CASE 2.—M., 25, admitted March 8th, 1920, discharged May 15th, 1920. Dysentery in 1918, no recurrence; pain in liver January, 1920, involvement lower lobe of right lung with slight pyrexia. Slight leucocytosis (9000) (polymorphs 62 per cent.). Faeces negative for *E. histolytica*. March 23rd, 1920: liver aspirated in seventh intercostal space, 13 oz. of pus obtained and 3 gr. emetine in 10 c.cm. saline injected. Re-accumulation of pus necessitated second aspiration three weeks later, 19 oz. removed. On April 27th abscess formation suspected for third time, 6 oz. of clear serous fluid aspirated, no pus; medicinal treatment. 23 gr. of emetine with pulv. ipecac., gr. v.; convalescence uninterrupted; increase in weight 7 lb.

This case demonstrates that re-formation of pus in the abscess cavity should not be regarded as spelling failure of aspiration, for a second attempt may effectually remove the focus. The effusion of serum

into the abscess cavity which eventually took place may represent a normal method of cure; it was noted by Annesley in 1828.

CASE 3.—M., 39, admitted on June 9th, 1920, eventually discharged on Dec. 9th, 1920. Numerous recurrences of dysentery since November, 1918; pain in left side May, 1920. Definite dull, tender swelling in epigastrium extending to left hypochondrium, slight pyrexia, cyanosis, and great cardiac distress; leucocytosis 20,000. Faeces: active, *E. histolytica*. Under local anaesthesia (2 per cent. novocaine with adrenalin); aspirated in sixth left intercostal space, 43 oz. of thick pus (containing *E. histolytica*) obtained. Aspiration took two hours to complete. A second operation was undertaken a week later as the respiratory and cardiac symptoms persisted, the abdomen being opened under local infiltration anaesthesia. The liver was still enlarged and three further aspirations yielded 8 oz. blood-stained pus. A fortnight afterwards condition improved; pulmonary signs at left base diminishing. The Wassermann reaction being positive, he was discharged in order to obtain further injections of N.A.B. He was readmitted on Nov. 20th, 1920, for a full course of treatment with E.B.I., dysenteric symptoms having supervened. Since then there has been no recurrence either of hepatic or dysenteric symptoms, and he has put on over 14 lb. in weight.

This was evidently a left lobe abscess. On admission the general condition contra-indicated general anaesthesia. The removal of the first 43 oz. of pus by aspiration, by relieving the pressure, apparently saved the patient's life, who, at that time, would have succumbed to any major operation.

CASE 4.—G., 41, admitted on Nov. 12th, 1920, discharged on Dec. 20th, 1920. In July, 1920, noted a dull aching pain in his right shoulder, gradually spreading to the side of his chest, most intense along the anterior costal margin, and worst at night; sweats, cough, and loss of weight had followed. On admission he had severe hepatic pain, also irregular pyrexia (temp. 101° F.) with increased liver dullness. Red cells 3,700,000; leucocytes 8800 (polymorphs 75 per cent.); faeces contained cysts of *E. histolytica*; no visible ulceration of the rectum. On Nov. 16th, 1920, aspiration in epigastrium opposite eighth costochondral junction resulted in the withdrawal of 28 oz. liver pus; 3 gr. emetine in 10 c.cm. of saline were injected into the cavity. Patient experienced great relief, but profuse sweating occurred. Liver dullness normal in 10 days. Subsequent treatment: seven injections of emetine, 1 gr. and 18 gr. of E.B.I. Patient greatly improved, night sweats ceased, and he gained considerably in weight.

The initial shoulder pain was a dominant feature, also absence of any history of diarrhoea or dysentery, nor any evidence of active infection of the bowel were points worthy of note.

CASE 5.—W., 45, admitted Jan. 8th, 1921, discharged March 7th, 1921. Contracted dysentery in 1917, numerous relapses since. Shoulder and hepatic pain December, 1920. On admission clinical picture suggested acute cardiac distress; liver enlarged downwards below costal margin; dullness and signs of compression at base of right lung, together with intermittent pyrexia. Red cells 4,000,000; moderate leucocytosis 10–12,000 (polymorphs 73 per cent.); no cysts of *E. histolytica* in faeces while in hospital (though previously recorded on numerous occasions). X rays revealed stretching of dome of diaphragm, but little impairment of movement. Aspiration with local anaesthesia; aspirated in ninth interspace in anterior axillary line; 3 oz. thick pus withdrawn and 3 gr. emetine injected. Second aspiration 11 days later yielded 4 oz. similar pus. Owing to persistent pyrexia, in spite of emetine treatment under general anaesthesia, the abdomen was opened and the liver explored (11 punctures) without result. After further emetine injections he rapidly recovered and left weighing 10 st. 2 lb. (an increase of 8 lb.).

In this case the amount of pus was small in relation to the acuteness of the symptoms and the relief obtained after its withdrawal. It is probable that two small abscesses existed.

CASE 6.—C., 23, admitted Feb. 26th, 1921, discharged March 29th, 1921. As seaman had diarrhoea in Calcutta in November, 1920; latterly pain in left side and shoulder, painful swelling, size of large orange, in epigastrium; no pyrexia or diarrhoea or leucocytosis; faeces contained cysts of *E. histolytica*. Aspirated in epigastrium and three pints of pus obtained. After a course of E.B.I. 30 gr., wound healed and patient regained weight and condition.

A remarkable case possibly of a left hepatic abscess, attempting to burst to the exterior through the abdominal wall and at the same time producing

little or no disturbance with only slight pain and no pyrexia.

CASE 7.—Mrs. B., 63, stewardess, admitted April 5th, 1921, discharged June 3rd, 1921. Frequent slight attacks of dysentery during last ten years, three years gradual loss of weight; three months abdominal pain and pyrexia; enlarged painful cervical glands one week. On admission obviously distressed and ill; complexion "muddy," thickly furred tongue, hectic pyrexia, profuse sweats, enlarged cervical and axillary glands. Slight enlargement and tenderness of liver below costal margin; definite abdominal tumour in left hypochondrium, apparently co-extensive with left lobe of liver and in splenic area a tumour, surmised to be the enlarged left lobe of liver. Lungs: Definite signs of compression, dullness at the right base; nocturnal cough. Advanced oedema of both feet; no albuminuria, moderate anaemia, haemoglobin 70 per cent.; red corpuscles 3,000,000; leucocytosis 25,000. Faeces contained no cysts of *E. histolytica*. Heart sounds faint and feeble, pulse rapid (120) and irregular. Aspiration under local anaesthesia in right ninth interspace in axillary line produced 14 oz. of pus; 20 c.cm. eusol solution injected into cavity; immediate great relief. A second aspiration was undertaken after a period of five days, on account of persistence of signs at the right base without result. Pyrexia persisted for over a month. Medicinal treatment, pulv. ipecac. and emetine; of the former she had 155 gr., of the latter 9 gr. by injection.

On admission the physical condition of this patient was critical. The quite evident glandular enlargement, together with multiple tumours, suggested malignant disease. The abscess appeared to be situated in the lower portion of the right and extending into the left lobe of the liver. Improvement subsequent to aspiration was remarkable. A major abdominal operation in this case would undoubtedly have proved fatal.

CASE 8.—A., 27, admitted April 22nd, 1921, discharged July 11th, 1921. Diarrhoea and dysentery in Mesopotamia in 1916, invalidated on this account. In March, 1921, pain in right chest and dull ache in right shoulder, cough, night sweats. On admission anaemic, emaciated, distressing cough, drenching sweats; pyrexia, 99°–101° F. Signs of fluid at right base, superficial oedema in axilla and over hepatic area. Considerable enlargement of liver; fifth rib in anterior axillary line to three inches below the costal margin. Appreciable anaemia; haemoglobin 70 per cent., red cells 3,800,000; leucocytosis 11,000 (polymorphs 59 per cent., lymphocytes 33 per cent.). Faeces normal, no entamoebae or cysts. Aspiration in ninth interspace in anterior axillary line; thick pus obtained, too viscid for aspiration. Resection of ninth rib where pleura was found forced up, pus (6 oz.) successfully evacuated with Cantlie's tube, subsequently exchanged for narrow rubber drainage-tube. Good recovery within a month. After convalescence course of E.B.I. 36 gr., increase of weight 14 lb.

This case illustrates the procedure to be adopted when the pus proves to be too thick for successful aspiration. Resection of the rib was necessary in order to obtain drainage; the wound began to close up three days after operation.

CASE 9.—S., 25, admitted on April 25th, 1921, discharged on May 9th, 1921. Dysentery in Mesopotamia in October, 1918, since when four relapses treated with two full courses of E.B.I. In October, 1921, rheumatic pain in right shoulder, pyrexia and wasting, tongue furred, complexion sallow and muddy—typical appearance. Great enlargement of liver, upwards to the third interspace and downwards into the abdomen; extension laterally into left hypochondrium. Little tenderness on pressure. Haemoglobin 70 per cent.; leucocytes 11,000 (polymorphs 75 per cent.). Faeces: No entamoebae or cysts. Under general anaesthesia liver punctured at point of maximum tenderness at seventh costo-chondral junction; 24 oz. typical pus obtained. Rapid diminution in size of liver. Medicinal treatment consisted of 16 injections of emetine, 1 gr. each. Before leaving hospital he had put on 9 lb. in weight.

A second abscess appeared after a lapse of one year and seven months, for he was readmitted on Jan. 2nd, 1923, with enlarged and tender liver, pyrexia, and a leucocytosis of 15,000. In autumn of 1922 he had complained of intermittent hepatic pain, shoulder pains, nocturnal sweats, and fever. Immediate operation under general anaesthesia and aspiration of 15 oz. of pus in epigastrium. Three weeks' treatment with emetine periodide and discharge on Jan. 30th, 1923.

The only instance in the present series of cases in which another abscess recurred after a prolonged interval. The second aspiration was unattended, as in the first, by any severe constitutional symptoms. The case also demonstrates the possibility of abscess formation after full courses of emetine-bismuth-iodide.

CASE 10.—H., 35, admitted July 14th, 1921, discharged August 15th, 1921. Dysentery in India, April, 1921; relapsed a month later. Soon suffered from hepatic pain, for which he was admitted. Definite enlargement of liver and bulging of chest wall; tenderness on pressure; drenching sweats. Haemoglobin 70 per cent.; leucocytosis 16,000 (polymorphs 85 per cent.); red cells normal. Moderate intermittent pyrexia. Rash on both tibiae resembling squamous syphilide, yielding to potassium iodide. Aspirated in ninth right intercostal space; about 1 oz. pus obtained and 3 gr. emetine were injected into cavity. Medicinal treatment consisted of intramuscular and hypodermic injections of emetine—14 gr. in all. The patient made an uneventful recovery, gaining 5½ lb. in weight.

A straightforward case presenting no unusual features. The good effects of the treatment were obvious.

CASE 11.—V. L., 37, admitted August 10th, 1921, discharged Sept. 27th, 1921. No previous history of dysentery. War service in Mesopotamia. First complained of hepatic pain in May, 1921; pain and swelling in region of gall-bladder, anorexia, and wasting. On admission very emaciated; tongue densely furred; dry lustreless skin. No signs in lungs. No upward enlargement of the liver; fullness in epigastrium, where palpable tumour co-extensive with the liver could be made out, giving the general impression of a malignant growth connected with the gall-bladder or pylorus. Slight pyrexia, no diaphoresis; haemoglobin 70 per cent.; red cells 3,800,000; leucocytosis 12,000 (lymphocytes 36 per cent.). The faeces contained blood and mucus, free forms, and cysts of *E. histolytica*. Aspiration on August 15th, 1921, in epigastrium at the site of maximum tenderness, yielded 8 oz. liver pus. Medical treatment consisted of 10 gr. of emetine followed by a full 12-day course (36 gr.) of E.B.I. Rapid increase of weight and gain of 20 lb.

In this case amoebic dysentery coexisted with hepatic abscess. The situation of the tumour and its apparent connexion with the gall-bladder suggested at first sight malignant disease.

CASE 12.—W., 26, admitted Sept. 3rd, 1921, discharged Oct. 12th, 1921. Dysentery in Palestine in 1920; relapsed several times in 1921. Three weeks before admission was weak and fainted, and in falling hurt his right shoulder; pain persisted, relieved only by supporting elbow. Irregular pyrexia, drenching sweats, dry furred tongue; compression of base of right lung. Leucocytosis of 15,000; haemoglobin 80 per cent. Faeces contained mucus and numerous *E. histolytica* cysts. Wassermann negative. Aspiration through eighth intercostal space in anterior axillary line yielded 2 oz. thick pus free from entamoebae. Treatment, 195 gr. pulv. ipecac. and 7 gr. of emetine followed by a ten-day course of emetine-bismuth-iodide. Patient left hospital having gained 14 lb. in weight.

The shoulder pain was the dominating feature in this case and demonstrates the amount of physical pain and systemic disturbance which may be occasioned by an abscess of such small dimensions.

CASE 13.—U., 44, admitted Dec. 21st, 1921, discharged Feb. 16th, 1922. Dysentery in South Africa in 1918. September, 1921, pain in right side treated with calomel, but became very emaciated and lost altogether 28 lb. in weight; no jaundice, pyrexia, or sweating. Septic ulcer on upper lip; looked extremely ill. Dull, sallow, cachectic; pulse slightly accelerated; no respiratory embarrassment. Dullness at right base from seventh rib downwards; anteriorly from the fourth rib extending into the abdomen; laterally continued to left hypochondrium where the left lobe of the liver was palpable. X ray screening demonstrated immobilisation of the right dome of the diaphragm. No enlargement of lymphatic glands. Definite anaemia; red cells 4,000,000; haemoglobin 70 per cent. Slight leucocytosis, 12,000. *E. histolytica* cysts found in faeces after numerous examinations. On Jan. 11th, 1922, aspirated through eighth intercostal space in mammary line, 64½ oz. reddish-brown liver pus obtained. No entamoebae found. Remarkable improvement followed medication with pulv. ipecac. (gr. x. nocte), and a ten-day course of E.B.I. (30 gr.). End of January, 1922, liver normal size. Weight had increased from 136 to 148 lb., while in March, 1922, he reported weighing 165 lb., heavier than ever in his life. Has remained well ever since.

Here was a liver abscess of very considerable size, producing intense anaemia and cachexia without causing great embarrassment or pyrexia. Had it not been for the moderate leucocytosis and the presence of *E. histolytica* in the stools, the possibility of hepatic abscess could scarcely have been entertained. The recovery was as remarkable as it was rapid.

CASE 14.—K., 56, admitted May 16th, 1922, discharged May 27th, 1922. Diarrhoea in India, July, 1921. February, 1922, influenza with recurrence of dysentery; pyrexia, hepatic pain, and colitis, April, 1922; on emetine treatment intestinal symptoms subsided, but hepatic pain persisted. On admission sallow, nocturnal sweats, tachycardia, extension upwards of hepatic dullness, localised pleural rub in seventh interspace. No marked anaemia; leucocytosis 18,000. Faeces: no cysts of *E. histolytica*. Aspirated May 18th, 1922, under general anaesthesia, through eighth intercostal space; 3 oz. of pus located two inches deep in the liver. Medical treatment consisted of 8 gr. of emetine and he was discharged in order to undergo further anti-amoebic treatment at home.

The advantage of aspiration is brought out by the short duration of the patient's stay in hospital—11 days only!

CASE 15.—B. H., 46, admitted Jan. 8th, 1923, discharged Feb. 20th, 1923. History of amoebic dysentery 1915, with frequent relapses since. Present attack began on Dec. 15th, 1922, with dysentery. On Jan. 4th, 1923, dysentery ceased with the onset of acute epigastric pain, pyrexia, and headache. On admission patient was very toxic, in considerable pain, and the liver, which was very tender, was two inches enlarged downwards. Total W.B.C., 18,000. On Jan. 9th, 1923, under general anaesthetic, liver was explored in epigastrium half an inch to right of midline. Pus located at once close to surface of liver, very viscid, 3 oz. aspirated, no more obtainable, but much necrotic tissue felt. Symptoms partially relieved, but gradually returned, in spite of emetine injections intramuscularly. On Jan. 18th, 1923, with novocaine, re-aspirated 8 oz. of pus. Recovery now rapid. Later E.B.I. course administered. On discharge the hepatic condition was apparently normal, but some muscular paresis still existed, due, apparently, to emetine intoxication.

This case is of interest as showing that emetine alone will not necessarily effect a cure without aspiration.

Note on a Case Treated by Open Operation.

Only one other case of hepatic abscess was admitted to the hospitals under our charge during the latter part of 1919, before the adoption of the aspiration method of evacuating the liver pus. An outline account of the case is given below. Although differing in no essential feature from others of the series (especially Case 13), yet it must be conceded that neither in efficacy nor ultimate result were the results of open operation so satisfactory. The patient was subjected to three operations and remained over six months in hospital. Secondary infection of the abscess cavity with suppurative organisms had obviously taken place. A noteworthy feature of the case was the low degree of leucocytosis in association with an abscess of so large a size.

W., 29, admitted Dec. 30th, 1919, discharged July 2nd, 1920. Dysentery in 1916 in Egypt. Swelling of abdomen September, 1919, with diarrhoea, sense of weight in right side, profuse sweats, slight jaundice. Complexion sallow. Heart's apex, third interspace; half an inch external to nipple line; sounds faint and evenly interspaced. Liver dullness extended from fourth rib to umbilicus. Dullness posteriorly on right side below angle of scapula, measured in mid-sternal line distance from upper to lower limits of dullness, 10 inches. Varicosity of superficial epigastric veins. Slight pyrexia; slight anaemia. Haemoglobin 80 per cent.; leucocytosis slight, 9000, never more. The faeces contained cysts of *E. histolytica*. Abdomen opened under general anaesthesia, and on cutting through the right rectus muscle two quarts of thin liver pus escaped. Drainage-tube inserted which, owing to shrinkage in size of liver, had to be straightened under anaesthetic. Persistent discharging sinus, which became secondarily infected with streptococci through the drainage-tube, and in spite of lavage, scraping and vaccine therapy, refused to granulate up. On May 30th blockage of sinus with re-accumulation of pus occurred, necessitating a further anaesthetic and operative measures. The liver being punctured in other directions failed to yield any more pus; soon after the sinus healed up. Patient received altogether 400 gr. of pulv. ipecac. and 21 gr. of emetine; underwent three operations and was over six months in hospital!

Discussion.

We are firmly convinced, as a result of our experience that aspiration should be regarded as the method of election in liver abscess; not only is the patient not exposed to the same risk and pain as in the open

operation, but also his stay in hospital is considerably shortened. In our series of cases the average stay in hospital was 29.8 days. Not only has the method these advantages, but also aspiration may be safely undertaken under local anaesthesia in cases with respiratory or cardiac embarrassment when operation under general anaesthesia is contra-indicated. We are convinced, too, that the failure of the earlier exponents of this method may be ascribed to the non-recognition of the necessity of anti-amœbic treatment in addition to operative interference. There were no deaths in our series of 15 cases.

Conclusions.

We venture, also, to draw the following conclusions :

(a) *As Regards Diagnosis.*—1. Liver abscess may exist in absence of all suggestive laboratory tests (leucocytosis, pyrexia, ascertainable presence of *E. histolytica*). Therefore in cases of doubt aspiration should be undertaken. 2. A definite leucocytosis may not be present, but even if present, it is not usually a high one. 3. Pain in the right shoulder may be the most prominent and outstanding symptom. 4. Liver abscess may exist in the absence of any pain or tenderness referable to the liver area at all. 5. Entamœbæ may, or may not, be demonstrable in the aspirated pus; their absence, or rather the inability to demonstrate these organisms under the microscope, does not negative the diagnosis of amœbic abscess; neither can these organisms be demonstrated in the faeces in every case. 6. X rays may be of considerable assistance in diagnosis; immobilisation or stretching of the dome of the diaphragm should be regarded as a valuable positive sign.

(b) *As Regards Treatment.*—1. A general anaesthetic is not always required, aspiration can sometimes be successfully performed under local anaesthesia, with little or no immediate risk. 2. All available pus should be aspirated at the one operation. 3. Aspiration is followed by a great sense of relief; there is a complete absence of shock following the operation. 4. Re-accumulation of pus does not usually take place, but if it does aspiration may be repeated and be followed by a permanent cure. 5. The method is applicable to the conditions of general practice. 6. The injection of emetine into the abscess cavity is by no means essential, nor, in our opinion, advisable, but it is most necessary to treat the patient with large doses of emetine bismuth iodide by the mouth in order to clear out, if possible, the source of infection from the bowel, and so to prevent re-invasion of the liver by entamœbæ derived from the bowel wall.

References.

- Annesley, J. (1828): *Researches into the Causes, Nature, and Treatment of the More Prevalent Diseases of India*, i., 667.
 Maclean, W. C. (1871): *Reynolds's System of Medicine*, p. 337.
 Veale, Brig.-Surg. (1882-3): *Ind. Med. Gaz.*, xvii., xviii., 103.
 Manson, P. (1883): *Rep. Chinese Imp. Maritime Customs*, pp. 50-63.
 Tones, A. (1884): *Ind. Med. Gaz.*, xix., 34-42.
 Jessett, F. B. (1885): *Ibid.*, xx., 297-298.
 Rogers, L. (1902): *Brit. Med. Jour.*, ii., 844-851.
 Megaw, J. W. D. (1905): *Ind. Med. Gaz.*, xl., 81-84.
 Rogers, L., and Wilson, R. P. (1906): *Brit. Med. Jour.*, i., 1397.
 Rogers, L. (1910): *Ind. Med. Gaz.*, xlv., 493-497.
 Drury, F. J. (1910): *Ibid.*, xlv., 348; *Report on Surgical Work at the Prince of Wales's Hospital, Calcutta*, for 1911-12: *Ibid.*, xlvii., 174.
 Rouget (1913): *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, xxix., No. 13, 809-812.
 Mallannah, S. (1913): *Brit. Med. Jour.*, i., 1206-1207.
 Chaffard, A. (1913): *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, xxix., No. 17, 1017-1024.
 Valence, M. (1913): *Ibid.*, xxix., No. 27, 276-282.
 Maurras and Hervier (1914): *Far Eastern Assoc. Trop. Med.*, C.R. Trop. Cong. Biennial, Saigon, pp. 106-110.
 Thurston, E. O. (1914): *Ind. Med. Gaz.*, xlix., 88-96.
 Newman, E. A. R. (1914): *Ibid.*, xlix., 97-101.
 Razetti, L. (1915): *Gacetta, Med. de Caracas*, xxii., No. 1, 6-7.
 Love, R. J. McN. (1918): *Brit. Med. Jour.*, i., 696-697.
 Gaglio, E. (1919): *Policlinico*, xxvi., No. 28, 883-884.
 Cope, Z. (1920): *Surgical Aspects of Dysentery*, Oxf. Med. Publications, pp. 104-105.
 Rogers, L. (1921): *Bowel Diseases in the Tropics*, *Ibid.*, pp. 350-386.
 Rogers, L. (1922): *Lettsomian Lectures*, *THE LANCET*, i., 463-469, 569-575; *Brit. Med. Jour.*, i., 224, 264-266, 345-347.

THE TREATMENT OF INTERNAL DERANGEMENTS OF THE KNEE-JOINT.

A NEW METHOD OF OPERATIVE EXPOSURE.

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(With Illustrative Plate.)

THE method of exposure of the knee-joint for anomalous or complicated cases here described is the outcome of a somewhat extensive experience of cases of internal derangements of this joint, for during the last four years alone nearly 400 cases have passed under my observation. Many of these cases had been previously operated upon elsewhere by various surgeons and by various methods, and it has been possible to review the results of the operations without the bias that tends to creep into personal statistics. It is hoped to present a detailed study of the experience gained and of some further researches into the underlying physiological factors and pathological types at some future time. It has, however, been brought home very forcibly to the author that the results of operation for internal derangements fall very far short of the ideal which should be our aim. The percentage of cases with persistence of original symptoms or with troublesome sequelæ is still too high. The factors contributing to an unsatisfactory result are many, but in this paper it is my purpose to deal with one only, which, however, I consider to be one of the most important—viz., inadequate exposure with consequent incomplete operation. One has gradually become convinced that, with certain exceptions, most operations for internal derangement of the knee should be of the nature of an exploratory arthrotomy. This particularly applies to cases of long standing or with anomalous symptoms.

We are presented with an analogy in abdominal surgery. A comparatively short time ago it was considered a somewhat brilliant procedure to remove the chronically inflamed (*sic*) appendix through a button-hole incision. With a fuller knowledge of the multitudinous conditions which may simulate the chronically-inflamed appendix, and with the knowledge that the peritoneum, if treated kindly, is a good friend to the surgeon, abdominal operations partake more and more of an exploratory nature. Similarly, the synovial membranes of joints, if treated with respect, are good friends to the surgeon, and with careful technique aseptic results should be automatic, and there would appear to be no justification from this point of view for the small openings in the joint capsule so often employed.

Arguments in Favour of Exploratory Arthrotomy.

(a) *The Difficulty of Arriving at a Definite Diagnosis.*—It is notoriously difficult to arrive at an exact diagnosis in cases of internal derangement of the knee. I have come across several cases where symptoms have pointed to a lesion of the internal semilunar cartilage, whereas the external cartilage was at fault, and vice versa. I have known typical locking and limitation of full extension of the knee, which could not be reduced by manipulation, to be produced by a loose body. Furthermore, symptoms exactly simulating a lesion of a semilunar cartilage may be produced by hypertrophy of (Fig. 1), or hæmorrhage into, a synovial fringe (Fig. 2) or alar pad (Fig. 3). Loose bodies may be present and may be single or multiple, pedunculated or free. Again, sudden giving way of the knee is an exceedingly common symptom in osteo-arthritis with or without the presence of a definite mechanical cause. Rarer causes of anomalous symptoms are foreign bodies in the joint, isolated lipomata (Fig. 4), diffuse osteo-chondro-

matosis of the synovial membrane, and sarcoma (Fig. 5). Extra-articular causes, such as exostoses, interfering with tendon action, which may give rise to somewhat similar symptoms, must be excluded before arthrotomy.

(b) *Coexistent Pathological Factors.*—A fact of fundamental importance, which is not yet sufficiently understood, is that many cases of internal derangement of the knee, particularly those that have persisted over long periods, are associated with other intra-articular pathological conditions. Some of these have already been mentioned. The loose bodies deserve a little further mention. The presence of synovial chondromata or osteo-chondromata is, in my experience, not infrequent in association with a damaged semilunar cartilage, or with a detached portion of the articular surface forming a loose body. They are usually associated with chronic synovitis and with the increased vascularity of the synovial membrane which accompanies this, or, on the other hand, they may be associated with the increased vascularity of the membrane that I have shown to occur in the earlier stages of osteo-arthritis. Occasionally one sees in the same joint, associated with some mechanical derangement, loose bodies that have arisen in this manner, and also those which have their origin in detached periarticular chondro-osteophytes, occurring in osteo-arthritis. I have encountered hypertrophy of the infra-patellar pad of fat, which may become densely fibrous—so that it cuts like an unripe pear—or cartilaginous, or even bony. It is impossible in a short paper to do more than briefly touch upon some of the commoner coexistent pathological conditions. It is desired to emphasise that in the absence of an adequate exposure coexistent conditions are particularly liable to be overlooked.

It is often asked, "Is it justifiable or desirable to operate upon cases of internal derangement in which osteo-arthritic changes have supervened?" The answer is that no hard-and-fast rule can be formulated, and that each case must be treated on its merits. In every case the age and general condition of the patient, the stage of the disease, whether progressive or quiescent, and the proportion between the symptoms due to the osteo-arthritic condition, and those due to mechanical derangement, have to be carefully considered. If the changes are localised, and evidently due to mechanical irritation, they will obviously progress while the cause persists, and there is reason to believe that such an operation may prevent generalised changes. It is surprising to find in many cases quite a marked degree of osteo-arthritis which is giving rise to remarkably few symptoms per se, and yet locking or sudden giving way of the joint is due to some definite mechanical cause. In these cases, the removal of the latter, where possible, may prove to be a very satisfactory procedure.

Criticism of Some Common Operative Exposures of the Knee-Joint for Internal Derangement.

(a) *Transfixion and Local Removal of a Loose Body.*—Although this method is still recommended by many modern text-books, it is an unscientific relic of pre-antiseptic days, when the opening of a joint was a formidable procedure. A full exposure of the joint is imperative, and failing this other conditions or coexistent loose bodies not always evident in the skiagram will almost certainly be overlooked. There is, however, no objection to transfixion provided that a complete exposure follows.

(b) *Curved or Straight Lateral Incisions over the Joint Interval.*—These incisions, save in very exceptional circumstances, do not yield such satisfactory results as the more complete exposure to be described later; and through them it is impossible to explore fully the anterior compartment of the joint save by digital examination. The latter procedure is to be thoroughly deprecated. The finger under no circumstances should be introduced into the joint. Although surgeons still exist who advocate this procedure, it is extraordinarily significant that these are the same

surgeons who advocate post-operative drainage of the joint. By the exposure to be shortly described, the whole of the anterior compartment of the joint, including the supra-patellar pouch, is exposed to sight by suitable retraction. Through the semicircular incision it is, moreover, easy to remove a structure which may resemble the semilunar cartilage very closely, but which, in reality, has originated in an extension of the infra-patellar pad of fat upwards near the patellar margin. I have before me as I write such a specimen; it is composed of dense fibrous tissue of almost cartilaginous consistency, and closely resembles a semilunar cartilage. The operator was on the point of closing the joint under the impression that he had removed the cartilage, when further retraction revealed the latter still present.

(c) *Transpatellar Route.*—This undoubtedly gives a good exposure of practically the whole of the anterior compartment, and, doubtless, in the hands of the master who originated the method, it is an excellent procedure and attended with good after-results. I believe, however, that the method to be described later is simpler in performance, gives a better exposure, is a less severe operation, since it involves no division of bone or articular cartilage, is less likely to be followed by osteo-arthritic changes, and is attended with a shorter convalescence. It appears to have been hitherto overlooked that there are objections on physiological grounds to the transpatellar route, particularly if the most accurate apposition of bone and cartilage be not obtained. It has been shown that no true cartilaginous repair takes place in incisions in the centre of articular cartilage, but that incisions, if they heal at all, do so by an imperfect fibrous tissue. Moreover, I found experimentally that in certain cases not only did failure of union occur, but the cartilage on either side of the incision underwent necrosis. If, moreover, we examine the specimens of fractured patella in pathological museums we shall see in many cases degenerative changes in the articular cartilage surrounding the site of cleavage. It appears that in these cases, particularly when apposition is not perfect, the irregularity and imperfect union of articular cartilage actually act as a source of irritation and may, particularly in individuals past the meridian of life, set up a form of traumatic osteo-arthritis. The latter may not necessarily be sufficiently marked to be apparent on X ray examination, but is clinically recognisable by a harsh "nutmeg grating" on moving the patella from side to side upon the trochlear surface of the femur with the knee extended, and also by aching and pain after exercise.

The Operation.

The stages described are particularly applicable to cases where symptoms point to the inner side of the joint. If symptoms point to the outer side of the joint, the positions of the incision in the skin and capsule are reversed. The skin is prepared by the iodine method and a tourniquet used. Aseptic results are in my clinic automatically obtained.

Stage 1.—Make a slightly curved incision through skin and subcutaneous tissues (Fig. 6). This incision commences above in the mid-line an inch above the uppermost limits of the supra-patellar pouch, skirts the inner border of the patella and the inner border of the ligamentum patellæ, and ends below slightly to the inner side of the tubercle of the tibia. The flap of skin and subcutaneous tissues is reflected outwards to slightly beyond the outer border of the patella. The skin flaps are protected by gauze, or the incision may be made through a covering of sterile gauze or stockinette which is afterward clipped to the skin edges.

Stage 2.—Make a mid-line incision through the well-defined layer of fascia covering the quadriceps tendon (Fig. 7). Prolong this downwards and slightly inwards to the middle of the upper border of the patella. Thence continue in the mid-line of the patella through the same layer of fascia and through the somewhat thinner fascia covering the centre of the ligamentum patellæ as far as the tubercle of the

tibia. This incision should avoid the subjacent quadriceps tendon, the periosteum on the front of the patella, and the ligamentum patellæ.

Stage 3.—The above-mentioned fascia is raised and reflected inwards by a few light touches of the scalpel (Fig. 8). Above, a few fibres of the vastus internus may with advantage be included in the base of the flap. Below, the base of the flap should be half an inch from the inner border of the patella and from the inner border of the ligamentum patellæ.

Stage 4.—The above-mentioned fascial flap is to be well retracted inwards by the assistant. Next the capsule is divided a quarter of an inch from and parallel with the inner border of the patella (Fig. 8). The incision is carried upwards somewhat obliquely through the inner fibres of the quadriceps tendon, carefully avoiding any muscular fibres of the vastus internus; and below, the incision is carried through the capsule at the inner border of the ligamentum patellæ (see dotted line Fig. 8). The synovial membrane is next divided along the line of division of the capsule save in the extreme lower part of the incision.

Stage 5.—The patella is dislocated to the outer side of the joint, and on further flexion of the joint an excellent exposure is obtained of the whole of the anterior compartment (Fig. 9). The introduction of the finger into the joint, as already mentioned, is

It is my practice to suture the synovial membrane with a continuous suture of fine catgut. The incision in the alar pad should be carefully sutured, but if the latter is pathologically enlarged, it should be removed. The capsule is next sutured with a continuous suture of stout chromicised catgut. Next the flap of fascia is replaced and sutured in the mid-line with a continuous suture of medium-sized catgut. Thus the opening into the joint is closed after the fashion of a double-breasted coat. The skin is sutured with interrupted silk-worm gut sutures. The tourniquet is not removed until dressings and bandages are firmly in position.

After-treatment.

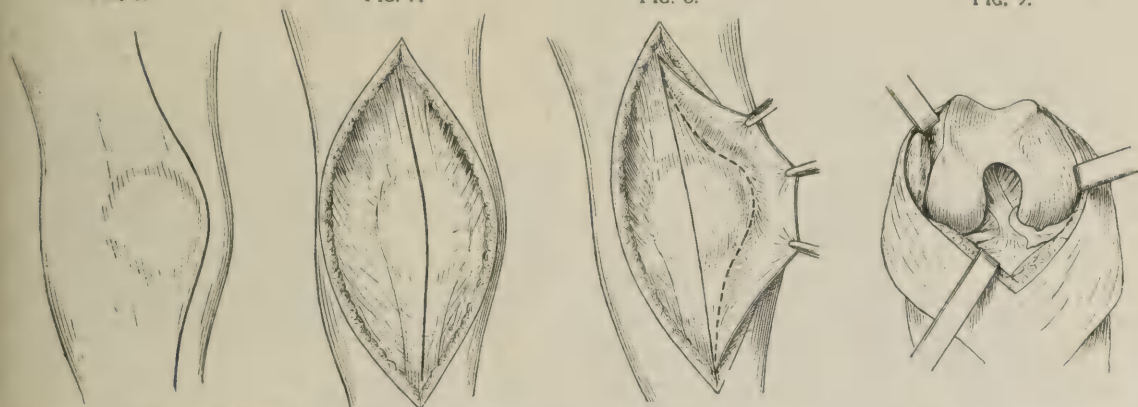
No splint is used. The limb is supported in a position of slight flexion with pillows. The silk-worm stitches are removed on the seventh day, and massage and movements, both active and passive, instituted, the patient being allowed to sit in a chair daily. At the end of two weeks the patient is allowed to commence to walk about. Massage and movements are continued. At the end of three weeks patients are usually able to walk fairly well, and at the end of the fourth week almost normally. Post-operative swelling is rare in my experience, and I believe it to be usually due either to the trauma inflicted on the synovial membrane by inadequate

FIG. 6.

FIG. 7.

FIG. 8.

FIG. 9.



FIGS. 6, 7, 8, 9.—Stages of the operation of exploratory arthrotomy of the knee-joint, described in the text.

quite unnecessary, since with suitable retraction every part is brought into sight.

It will have been noted that the lower portion of the incision in the capsule opens up the region of the infra-patellar pad of fat and alar pad (so-called "alar ligament") which here project into the joint. This is next divided if necessary, one or two ligatures being often desirable at this spot even if a tourniquet be used. If the operation be performed for loose bodies, this stage is not always necessary. This step, however, undoubtedly facilitates the dislocation of the patella and gives an even better exposure. In Fig. 9 a "bucket-handle" type of lesion of the internal semilunar is represented, and was drawn from an actual case. The ligamentum mucosum is not represented, as it was absent in this case. I have not found that normally it obstructs the view of the opposite side of the joint. If, however, it is unusually well developed, it may be divided and subsequently sutured.

Personally, I cannot see any objection to moving the joint during the operation, and have more than once been upon the point of closing a joint after a careful search has revealed nothing abnormal, when, on flexing or rotating the knee, a loose body has shot out from the back part of the joint, or the detached posterior end of, or a tag of, cartilage split from the circumference of the semilunar cartilage has come into view.

On completion of the intra-articular stage, the knee is extended and the patella is easily replaced.

exposure, or to a mild degree of sepsis due to the introduction of the finger into the joint. Both factors are necessary concomitants of inadequate exposure.

Illustrative Cases.

The following are illustrative cases, selected from a large series.

CASE 1.—A man wounded in the right knee in August, 1915, at the Dardanelles by a shrapnel bullet. A short note made in August, 1917, states: "Knee creaks on movement, no fluid present. Flexion to 90°. Extension full." October, 1920: "Loose body can be felt. Knee swells after walking three or four miles. Movements as before." December, 1921: "A loose body was removed from the joint through a small incision on the outer side."

Condition on Admission.—Right knee: Two small healed scars present, one at the outer side of the patella, the other in the popliteal space. Small operation scar on outer side over joint interval. Well-marked thickening of synovial membrane on either side of patellar ligament. No obvious lifting of articular margins present.

Movements.—These, accompanied by harsh crepitus, were as follows: Flexion slightly restricted; extension full, but in passing from angle of 135° to full extension there is a very obvious sudden slipping forward of the tibia over some obstruction in the outer part of the joint with an audible "click." Some wasting of the thigh. X ray examination, in addition to showing a mass of new bone projecting into popliteal space, reveals the presence of many loose bodies in the anterior compartment of the joint, one of which lies in the supra-patellar pouch (Fig. 10).

Operation.—This was performed by the method detailed above. The external alar ligament or pad, with the corresponding part of the infra-patellar pad of fat, was found

studded with osteo-chondromatous nodules (Fig. 11), which, although projecting slightly into the joint cavity, were for the most part deeply embedded. The affected area was removed entire. A similar body, with a very long twisted pedicle, was removed from the supra-patellar pouch, and several enlarged synovial villi, apparently not as yet chondrified, were removed. The posterior end of the external semilunar cartilage was found completely separated from its attachments and displaced forwards so that it was in contact with the anterior half (Fig. 12). The whole cartilage was removed with the greatest ease. There were no obvious signs of osteo-arthritis present. The wound was sutured in the usual fashion.

This case is of interest in demonstrating the advantage of a complete exposure and the futility of limited incisions in such cases. It is possible also that the passage of the shrapnel bullet through the joint caused the displacement of the posterior horn of the semilunar cartilage. The patient has made an excellent recovery, has full movement in the joint, and is free from symptoms. The cause of the persistent synovitis having been removed, as also all enlarged villi, the prognosis is good, particularly as osteo-arthritic changes are absent.

CASE 2.—This is an example of the advantage of the exposure in a case of osteo-arthritis with loose bodies. The patient stated that he first noticed loose bodies in his right knee-joint in 1916. The knee is weak, but the principal trouble consists in frequent giving way of the joint with temporary locking. There is one inch wasting of the right thigh. X ray shows well-marked osteo-arthritic changes with general lipping of the articular margins, and two large loose bodies in the supra-patellar pouch.

Operation.—Exposure as above. Partial erosion of central parts of articular cartilage noted with well-marked lipping. Two disc-shaped cartilage-covered loose bodies were removed from the supra-patellar pouch. These were obviously detached chondro-osteophytes. A small pedunculated cartilaginous growth was removed from the lower end of the anterior crucial ligament, and two other portions of synovial membrane loaded with hypertrophied villi were removed.

Result.—Patient markedly improved. No longer complains of giving way of the knee. Movements are full.

In many cases of osteo-arthritis the principal symptom consists in painful locking or giving way of the knee. These are particularly suitable cases for operation, other things being equal. With early movements and careful after-treatment no limitation of movement need be expected. In cases with effusion it has the additional advantage that the thick, often jelly-like, synovial fluid can be evacuated and the joint thoroughly flushed out with an antiseptic. In many cases this procedure has in my hands apparently cut short the disease.

CASE 3.—The patient fell and twisted his knee on Jan. 5th, 1921. Was in hospital for several weeks and treated for "synovitis of knee." On May 30th the knee gave way suddenly and he fell, fracturing his right humerus. On August 8th the internal semilunar cartilage was removed elsewhere. On Nov. 21st he complained of pain on full flexion and extension. Small amount of fluid present. Walked with a limp and stated knee was weak. There was pain on outer side of patella. On April 5th, 1922, external semilunar cartilage removed elsewhere. On June 8th he stated knee was worse. Considerable amount of fluid present. The joint still "let him down."

Condition on Admission.—Two curved incisions were present, on inner and outer aspects of joint respectively. There was some thickening of the synovial membrane but no free fluid. Full flexion of the knee was restricted and painful. No evidence of osteo-arthritis, but X ray showed unnatural opacity of the infra-patellar pad of fat.

Operation.—On full exposure by above-mentioned incision it was seen that both semilunar cartilages were present. The internal was normal, but the external, although not fractured or completely detached from its periphery, was abnormally loose, with a fibrous and attenuated inner border, and was accordingly removed. The infra-patellar pad of fat was markedly thickened, and, after removal, cut like an unripe pear, owing to the dense fibrous tissue it contained. The joint was closed in the usual manner and the patient is making an uneventful recovery.

The fact that this patient had undergone operations by the "classical" routes upon both cartilages, and a more complete exposure showed them to be both present is particularly instructive. The finding of a cartilage alleged to have been removed has

befallen me several times, and it is a strong argument in favour of complete exposure.

CASE 4.—A seaman aged 35. Eight weeks before admission the ship pitched and he fell with his weight upon his right knee upon the deck. The knee was locked for a short while and became swollen. He lay up for five days, but afterwards carried on his duties.

Condition on Admission.—He complained of swelling of the joint, pain on walking, and frequent "giving way" of the knee. X ray showed some diminution of the joint interval on the inner side, but joint surfaces were quite clear. This fact was of interest in view of the operation findings. There was some thickening of synovial membrane, particularly on inner side of joint. No fluid at time of examination; movements full; no lateral mobility. There was well-marked tenderness over anterior end of internal semilunar cartilage which became accentuated when, on fully extending the leg, the anterior end came in contact with the finger. Owing to this fact it was considered unlikely that the condition was one of simple displacement of the anterior end of the cartilage. The diminution of the joint interval on the inner side, with also the presence of full extension, appeared to point to a "bucket-handle" type of lesion, and this was subsequently confirmed.

Operation.—This was performed by the above-mentioned route. A splendid view of whole of anterior compartment of joint was obtained. A "bucket-handle" type of lesion of the internal semilunar cartilage was seen to be present (Fig. 9). A longitudinal split had occurred; one portion had been displaced into the intercondylar notch, whereas a narrow portion of the cartilage still remained attached to the capsule. No osteo-arthritic changes were present.

In lesions of the semilunar cartilage of this type a complete exposure of the anterior compartment of the joint is particularly to be desired, as otherwise the portion of the cartilage lying in the intercondylar notch may easily be overlooked.

CASE 5.—Male, aged 47, twisted the right knee at football 19 years ago, after which the knee occasionally gave rise to trouble which, however, was not a serious source of inconvenience, until he received a kick from a horse in 1916. After this second accident the knee frequently gave way, locking being followed by synovitis and joint effusion. In 1918 arthrotomy was performed, exposure being obtained through a curved incision on the inner aspect over the joint interval. Unfortunately, no report of this operation could be obtained, but his symptoms persisted as before and were in no way improved.

In 1921 the attacks of locking were marked, and, in addition, the pain and swelling were so far increased that an eminent surgeon recommended immobility and extension by means of a Thomas ambulatory calliper splint. In 1922 he was operated upon by a London orthopaedic surgeon, exposure being obtained through a curved incision on the inner aspect of the articulation, "a considerable portion of the internal semilunar cartilage being removed." But there was no improvement in his condition.

Condition on Examination.—I examined him three months later, and found a condition of chronic synovitis with effusion. Flexion was not possible beyond an angle of 90°. Clinical and X ray examination both negatived osteo-arthritic changes. Two small superimposed healed incisions were present on the inner side of the joint. As was not surprising, the patient's attitude was one of scarcely veiled opposition towards the medical profession; he had suffered much of many surgeons during the past seven years, at least two of whom were of European repute. He was, however, anxious for something further to be done.

Operation.—An excellent exposure of the whole of the anterior compartment of the joint was obtained by the method under discussion. The synovial membrane was obviously in a state of chronic inflammation, and certain necrotic fringes on the point of detachment were removed, as were also a few loose "melon-seeds." At first no mechanical cause of derangement could be seen, but on more careful examination it was found that the posterior end of the internal semilunar cartilage was still present, was loose, and was evidently the cause of the persistence of the locking and synovitis. There was a complete absence of true osteo-arthritis. By exercising a little patience the offending fragment was completely removed. On account of the condition of the synovial membrane it was considered advisable to wash out the joint cavity with sterile normal saline solution.

After-history.—This patient made an uneventful recovery and one of the most rapid in my series of cases; four weeks and one day after the operation he left my care, walking almost normally, with a full range of joint movement and complete absence of effusion. There has been no recurrence of his previous symptoms.

MR. TIMBRELL FISHER: OPERATIVE EXPOSURE OF THE KNEE-JOINT.

(Figs. 6-9 appear in the text.)

FIG. 1.



FIG. 1.—Hypertrophic synovial fringe from knee-joint. (No. 716 A, St. Bartholomew's.)

FIG. 4.



FIG. 4.—Pedunculated lipoma of synovial membrane. (No. 716 B, St. Bartholomew's.)

FIG. 5.



FIG. 5.—Pedunculated sarcoma of synovial membrane. (No. 569 E, St. Bartholomew's.)

FIG. 2.



FIG. 2.—Haemorrhage into a synovial fringe. (Mr. Cecil Rowntree's case.)

FIG. 3.

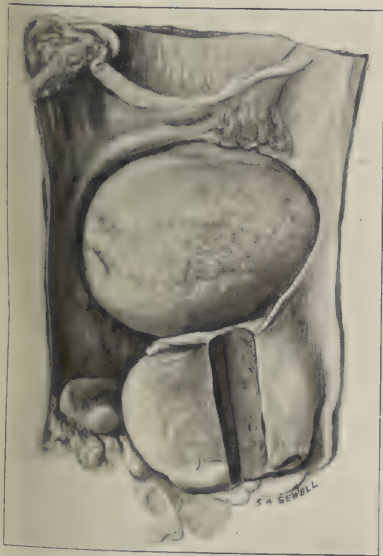


FIG. 3.—Haemorrhage into infra-patellar pad. (No. 843, St. Thomas's.)

FIG. 10.



FIG. 10.—Radiogram of Case 1, showing mass of new bone projecting into popliteal space, and many loose bodies in the anterior compartment of the joint.

FIG. 11.



FIG. 11.—Case 1, external half of infra-patellar pad of fat.

FIG. 12.



FIG. 12.—Case 1, external semilunar cartilage, of which the posterior portion was displaced forwards. The corresponding half of the infra-patellar pad was studded with osteochondromata (see Figs. 10 and 11).

pectoris, due to an aortic or coronary lesion, and, lastly, he died from intestinal infarction, terminal syndrome of arteritis of the mesenteric artery.⁷ It should also be noted that symptoms of intestinal arterio-sclerosis (paroxysmal abdominal pain, colic stasis) were absent, and that this lesion manifested itself only in its terminal syndrome, the intestinal infarction.

The second interesting clinical point was that diagnosis was made during life. In our case there was absence of hæmatemesis and sanguinolent diarrhoea—symptoms considered as characteristic of this affection. We founded our diagnosis on the fact that the patient showed an acute peritoneal syndrome, and had a long history of athero-sclerosis with arterial clinical manifestations. Our attention was directed towards the mesenterio-vascular thrombosis on account of a case published by one of us in collaboration with Dr. Laignel Lavastine,⁸ showing that the diagnosis of intestinal infarction can be often made if this possibility is borne in mind, as should always be done, for, as recently proved by Fernandez Martinez of Grenada, it is frequent enough.

Integrity of the Small Intestinal Vessels.—Lagane¹ in a very important work on intestinal arteritis affirms that the obliteration of an important artery is not in itself sufficient to produce complete and extensive intestinal infarction, and that the additional factor necessary is obliteration of the small vessels in the intestinal wall—arterioles, venules, capillaries—otherwise a compensatory collateral circulation would be established. Lagane's view is not proved by any anatomo-clinical observation. On the contrary, in our case the little vessels of the intestinal wall are intact (Fig. 2), some of them even showing dilatation of their lumen. Our view, founded on the present case, is that the lesion of these little vessels is not necessary, and that, even when healthy, these vessels cannot establish a sufficient collateral circulation. It is not the first case met with in pathology of an anatomically non-terminal artery which comports itself physio-pathologically as a terminal one. The entire vascular territory of the superior mesenteric artery can be injected by anastomatic channels from the aorta, but in the living being different conditions control the distribution of the circulating blood. And in the case of a rapidly developing obliteration of the main stem, or of an important branch, these anastomoses are not sufficient.

Intestinal Emphysema.—Our case presented a morbid change which is not described as a sequel of mesenteric obliteration—namely, "intestinal emphysema." The intestinal coils were distended in great part with gas, bubbles small and big being found in the submucosa. (In this connexion it should be remembered that the necropsy was made eight hours after death.)

Pathological Physiology of the Infarction.—From this observation the mechanism of the production of the infarction may be regarded as follows: The circulation of the blood through the arteries of our patient was much interfered with, and with the onset of heart failure became worse. Slowing of the blood flow in the vessel and disease of its walls were the two conditions favouring the production of thrombosis. On the other hand, heart failure which diminishes the blood pressure in the arteries raises it in the veins, and consequently in the territory of the portal vein. When the mesenteric artery is obliterated and one of the most important factors in venous circulation disappears, this pressure becomes much greater, and retrograde inflow of blood from the portal vein territory is provoked. The conditions found at the necropsy of our patient provide proof of this retrograde circulation; the liver was paler than usual and a little anæmic, the reverse of what is found in heart failure. The mesenteric veins, even the finest venous twigs, are crammed with blood. But arterial ischæmia and venous hyperæmia are not sufficient to provide the physio-pathological key to the condition under discussion, and for the production of the necrosis of the tissues microbial intervention must be postulated.

Our preparations show abundant bacterial infiltration, with a bacillus morphologically resembling *Bacillus perfringens* or *Bacillus phlegmonis emphysematosæ* of Welch, which are anaerobic gas producers and belong to the normal intestinal flora. Diminished resistance of the intestinal mucosa no doubt favoured the multiplication of these bacilli and probably the increase of their virulence.

Conclusions.

In this case hæmorrhagic infarction of the intestine appeared as a terminal syndrome of intestinal athero-sclerosis, of which it may be the only clinical manifestation. It can be diagnosed, if the thoughts of the clinician are directed towards this syndrome, even in the absence of the pathognomonic sanguinolent diarrhoea. It is produced even in the absence of alterations of the small blood-vessels, by obstruction of a sufficiently large artery. The arterial ischæmia and the venous stasis resulting from this obstruction impair the defensive mechanism of the intestinal mucosa and promote multiplication and augmentation of the virulence of the anaerobic bacilli which determine necrosis. The gangrenous necrosis in this case was a real gas gangrene.

References.

1. Lagane: Les artérites intestinales, Thèse de Paris, 1912.
2. Trotter, L. B. C.: Embolism and Thrombosis of the Mesenteric Vessels, Cambridge University Press, 1913.
3. Brady, L.: Arch. Surg., Chicago, 1923, vi., 151.
4. De la Rousselière: Contribution à l'étude clinique de l'oblitération des vaisseaux mésentériques, Thèse de Paris, 1920.
5. Martinez, F.: Artériosclérose abdominale, Paris Méd., 1921, xli., 285.
6. Cawadias, A.: L'exploration des artères des membres par l'oscillomètre, Bull. Acad. de Méd., Paris, 1915, 3e sér., lxxiv., 591.
7. Cawadias, A.: Les syndromes polyartéritiques, Comp. Rend. Soc. Biol., Paris, 1922, lxxvi., 1055.
8. Lavastine, L., and Cawadias, A.: Pancréatite suppurée terminée par thrombose mésentérique, Bull. et Mém. Soc. Méd. des Hôp. de Paris, 1911, 3e sér., xxxi., 146.

AN EPIDEMIC OF "FOURTH DISEASE."

By HUGH M. RAVEN, M.R.C.S. ENG.

THE diagnosis between scarlet fever, German measles (epidemic roseola), and "fourth disease" is proverbially so difficult that I think the following account of an epidemic, of which no diagnosis could be made at the time, is of interest, and should elicit valuable experiences and views from others.

In June and July, 1922, in a school of 80 girls and staff, there was an epidemic of 12 cases with the following symptoms and course. The onset was acute with temperatures varying from 102° to 104° F.; slight vomiting in two cases, otherwise none; and on the first day a scarlatiniform rash, scarcely affecting the face, but coming out at once all over the body and legs where it was somewhat raised and very irritable. This latter symptom was marked in nearly all the cases. The cases with the highest temperatures did not necessarily have the most copious rashes; only where the temperatures were high was there any rise of pulse-rate, and then only in proportion to the temperature. The throats showed a scarlet injection of the palate and fauces. The pyrexia lasted from seven to ten days. The tongues, though not covered with a thick white fur, peeled typically about the fourth day. The glands were not much enlarged in the early stage except in one case, where the posterior cervical group were involved; but in this case, and in three others there was secondary enlargement with pain and a little fever. Peeling began on the fifth to seventh day on ears, neck, and body, some powdering of the face, and was quite definite and complete, including the hands and feet, in all but two cases. One case, however, never peeled at all. But it is interesting to note that the desquamation had no relation to the intensity of the eruption. There was slight albuminuria in one case only, and no rheumatism or other complication in any. None of the patients could be called ill or toxic, although one patient became somewhat

exhausted with attacks of recurring enlarged glands, and left-sided peritonitis in the third and fourth weeks.

Cause of Infection.

The cause of the infection was reduced to one of two sources: (1) A concert attended by the whole school in a neighbouring town, where, I heard, there had been some cases of scarlet fever and German measles; the concert was 18 days before the first three, and 21 days before the fourth case (a mistress). (2) A maid developed a fibrinous tonsillitis (which proved not to be diphtheritic) seven days before the first three cases. She came from another neighbouring town where scarlet fever had been prevalent. After a few days she developed a quinsy, not the first in her life, and went home to convalesce, returning to her duties at the school on July 1st.

The parents of the children had been notified when the first four cases occurred, and a good many pupils had returned home. About 20 days after the first four cases, one child was taken ill at home, and her medical attendant diagnosed mild German measles, slight rash, slight faucial redness, a cold, and no peeling. (Only one other child was reported ill after returning home, developing measles on August 12th, and I cannot think that this has anything to do with our cases.) On July 6th four more cases occurred, on the eighteenth day after the removal of the first four to the sanatorium, and five days after the maid returned to the school; and this time the latter was sent home for good. The second four cases conformed to type, perhaps a little less severe; marked scarlatinal rashes, very irritable on the legs, red throats (two with some follicular tonsillitis, and these two children had later glandular complications). I may note here that one of the first four cases was a child who had had chorea; though her pyrexia was somewhat persistent, and her usual movements rather more marked, she did not develop endocarditis, or recur as an acute chorea.

Diagnosis of Scarlet Fever.

At this stage, all the cases were seen by an experienced colleague, who diagnosed them as scarlet fever. Three other patients developed the disease 18, 19, and 20 days from the second batch of children. Two conformed to type and peeled markedly; one of these had secondary enlarged glands and slight albuminuria. This was the school matron, who was said to have had German measles twice; she had the rash on her face, and also some conjunctivitis. The second case was the sanatorium maid; the third was a maid in the school whose rash was somewhat morbilliform and did not peel, but without catarrh and with the red throat. It should be mentioned that one of the children is said to have had scarlet fever, and one to have had German measles.

Here we have an epidemic with an incubation period of 18-21 days with all the signs and symptoms of scarlet fever, and without widespread infection to others. The occurrence of the case of tonsillitis just before the epidemic, and her return six days before the second four cases may have been misleading; yet had she been allowed to remain who can tell what further cases might have arisen? Apparently she infected no one at home.

The Case Against Scarlet Fever and Roseola.

On reflection one feels that the cases conform most closely to the description of "fourth disease," but I think it would be a brave medical officer who would risk not treating them as scarlet fever, while my experience of roseola has never brought me in contact with cases of such rashes and throats without catarrh, enlarged posterior cervical glands, and a wide epidemic.

For simplicity I tabulate as follows the important points against scarlet fever: (1) Incubation (assuming the maid did not start the epidemic); (2) no sequelae or complications, except secondary enlarged glands; (3) no early vomiting, except in two cases slightly; (4) the case of German measles developed at home and possibly the last case described. Against roseola was the following evidence: (1) Acute onset with high

fever; (2) almost universal absence of rash from the face; (3) peeling tongue; (4) absence of catarrh, especially in the eyes (except one case).

I am disposed to agree with Dr. C. Dukes,¹ of Rugby, that German measles is a diagnosis loosely applied to two diseases—epidemic roseola and "fourth disease," which should not be confused. The danger of confusion is much greater between "fourth disease" and scarlet fever. But, after all, what is the value of a diagnosis when one is not able to isolate an organism? I am led to think that the streptococcus and its numerous relatives are at the bottom of most of these cases, and that the toxin of the various members of the family, virile or less active, of the first or third or fourth generation, may produce an irregular, though similar, series of manifestations. I should be very glad to be told of references to bacteriological work on this subject, which might be helpful when faced with such an epidemic.

Broadstairs.

NOTE ON THE OPERATIVE TREATMENT OF MALIGNANT DISEASE,

WITH SPECIAL REFERENCE TO THE TONGUE.

By HERBERT J. PATERSON, C.B.E., M.C. CAMB.,
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It will hardly be disputed that within the last decade the operative treatment of carcinoma has not made such strides as might have been anticipated. It behoves us from time to time to search out the reason for lack of progress, and to consider our technique, to see if in any way this is at fault, or in what way it can be bettered. I sometimes wonder whether we appreciate fully the part played by the lymphatic glands in Nature's defence against the spread of carcinoma. May it not be possible that in modern surgery the glands are attacked too ruthlessly?

Two truths are established. A malignant growth spreads peripherally by invasion of the surrounding tissues, and distally by permeation of the growth through the lymphatics to the lymphatic glands into which they drain, which thus become infiltrated with growth. Most surgeons have met with cases where operation for a malignant growth has been necessarily incomplete, in that glands obviously infiltrated have been left behind, in spite of which fact the patient has lived 10, 12, or even more years, and in some instances has apparently been cured. Is it not a fair inference from this that the lymphatic glands are Nature's defence against distal spread of the disease—in other words, that such patients have lived, not in spite of, but because of the incomplete removal of glands? It seems clear that the lymphatic glands arrest, for a time at any rate, the progress of cancer cells; it is even possible that they may be able to a limited extent to deal effectively with such cells. Does this suggest a modification of our technique?

Possible Advantage of Glands as Wound "Scavengers."

The modern practice aims at the removal of the whole of the growth, together with all contiguous glands, in one piece. If we could be certain of removing the whole of the growth and leaving no isolated cancer cells behind, this procedure would undoubtedly be correct. In practice, however, it must be rarely possible to remove a malignant growth without leaving a few cells, either in the surrounding tissues or in the wound, as a result of the necessary manipulation of the growth. When cancer cells are left in a wound some or all of them probably permeate along the lymphatics to the nearest lymphatic glands, where, temporarily at any rate, their progress is arrested. If, then, all removable glands have already been removed, the

¹ THE LANCET, 1900, II., 89, 1384.

cancer cells may find their way to more distant groups of glands which are beyond the reach of surgical intervention. It is possible, therefore, that if the glands draining the region occupied by the growth are left, they may arrest the cancer cells which have remained behind, and prevent their spreading to more distant parts. After these glands have thus "scavenged" the operation area they can be removed before the cancer cells arrested in them have time to spread to more remote regions. These considerations are especially applicable to cancer of the tongue. In operation for lingual carcinoma it is obviously impossible to remove the growth and glands in the neck in one piece. A track of lymphatics is left between the site of the growth and the glands in the neck. This is one reason why operation for cancer of the tongue is followed so frequently by rapid recurrence. The lymphatics in this irremovable area are permeated with cancer cells. These cells may multiply in situ or migrate to distant glands leading to metastases. This suggests the speculation, what would happen if, when the growth is removed, the glands in the neck were left for the time being. Might not the cancer cells left behind be temporarily arrested in the glands of the neck?

Operation in Two Stages.

These hypotheses suggested a trial of the results of operation in two stages—i.e., removing the growth at the first operation, using cautery rather than knife,

and then three or four weeks later removing the glands. It seems to me that in this way any cancer cells left behind in the lymphatics would find their way to the nearest glands and be removed with the glands at the second operation. I operated for cancer of the tongue by this method five times previous to the war. During the war I had no further opportunity of trying this method. The results in these few cases are so encouraging as to suggest further trial of this plan of campaign. The first operation was performed in January, 1914, and the growth was reported by Dr. E. F. Bashford to be of a very malignant type. In 1921, seven years later, this patient came to see me, and to my surprise I could find no trace of recurrence either in the mouth or neck. This prompted me to inquire as to the results in the other four patients. I traced three of them and found that they were all well, nearly seven years after operation. Presumably the remaining patient had died.

I would suggest, therefore, that in cases of carcinoma of the tongue (1) the growth be removed by the actual cautery; (2) three weeks later the glands in the neck be removed in the usual way.

I have latterly been trying the same plan in operation for breast carcinoma, but whether it is advantageous or not it is too early to say, but as far as cancer of the mouth is concerned it seems to be a rational procedure worthy of further trial.

Clinical and Laboratory Notes.

A CASE OF STREPTOCOCCAL MENINGITIS.

BY STEPHEN G. ASKEY, M.D. CAMB.

THE following case of streptococcal meningitis with operation and recovery is of interest.

History.—The patient was a boy, aged 12, whose family history was good. For two and a half years he had had slight cervical lymphadenitis; in the abdomen he had a few palpable glands and occasional attacks of pain. He was subject to naso-pharyngeal catarrh with temporary deafness, and was often unwell and away from school for a few days at a time. In 1919 Mr. A. C. Gavin removed his tonsils and adenoids.

Condition on Examination.—On Jan. 22nd, 1923, I saw the boy on account of earache. He had considerable deafness, especially on the right side; right tympanic membrane slightly thickened; no mastoid tenderness, but a small gland below the right pinna was very tender. Several slightly tender glands along anterior aspect of upper third of right sterno-mastoid, and some enlarged glands on left side of neck also. These glands were larger a year ago.

Further Examination.—On Jan. 26th Mr. Gavin saw him and reported deafness in both ears with the right tympanic membrane indrawn and thickened. Rinne tuning-fork test negative in both ears. A soft whisper heard at 12 ft. from either ear. Right tympanum ventilated inadequately owing to a nasal spur meeting right inferior turbinal and blocking this side of nose.

Course of Case.—On Jan. 29th he began to have great occipital neuralgia on the right side, with normal pulse and temperature and no mastoid tenderness. On Feb. 3rd I saw him at 11 A.M., when he still had neuralgia; pulse and temperature normal, no visible change in ear, no vomiting, fundi normal, knee-jerks normal. Owing to persistent neuralgia I warned the parents of the possibility of meningitis. Half an hour after I left the house the boy vomited violently without warning. I saw him again about 2 P.M., when he was vomiting. The occipital neuralgia had ceased and he complained of left frontal headache. The temperature was 103.5° F., and the pulse-rate 108. There was no mastoid tenderness; Kernig's sign absent, neck muscles normal. Left knee-jerk present, but right knee-jerk only just obtained on reinforcement. Plantar reflexes indefinite; no nystagmus.

At 9 P.M. Dr. A. E. Russell saw him. Kernig's sign then present, neck muscles definitely rigid, knee-jerks absent except for a flicker on the right on reinforcement. No paralysis of eye muscles, no mastoid symptom. Lumbar puncture under light anæsthesia revealed a turbid cerebro-

spinal fluid under reduced pressure. Prof. L. S. Dudgeon examined the fluid that night and reported a pure culture of streptococcus the next morning.

Operation.—On the 4th Mr. W. H. C. Romanis saw the boy, who was vomiting frequently. Although there were no signs whatever of mastoid disease we advised an exploration of the right mastoid as offering the only chance, and that a poor one, of saving the boy's life. At 2.30 P.M. Mr. Romanis operated. There was a small area of diseased bone at the tip of the mastoid. The mastoid cells contained pus. The diseased mastoid was gouged away and the antrum was found full of pus. The antrum was irrigated with hydrogen peroxide, and the wound partly sutured, a gauze drain being inserted down to the antrum. The dura was not touched.

Recovery.—On the night of the operation the boy vomited twice, and not again. Pulse-rate and temperature began to fall at once (see chart); after 24 hours the gauze drain was

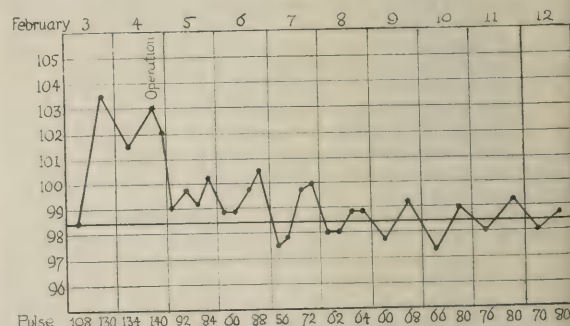


Chart of case of streptococcal meningitis showing fall of temperature after operation.

changed and the wound irrigated; these processes were continued daily until March 11th, when only a fine probe could be inserted. Knee-jerks began to return on Feb. 8th. The boy made an uninterrupted recovery and is about again. There is no impairment of mind, and at the time of writing his general health is better than it has been for a year. The condition of the right tympanic membrane is unchanged.

This was an undoubted case of generalised streptococcal meningitis, the organism being obtained in pure culture from the lumbar region of the cerebro-spinal canal. The meningitis was well established and the cerebro-spinal fluid only dripped slowly on lumbar puncture, both factors being said to increase the gravity of the prognosis. At operation the dura was not opened. The absence of signs of mastoid inflammation was rightly disregarded.

Balham, S.W.

A CASE OF SPONTANEOUS RUPTURE OF THE HEART.

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ASSISTANT SURGEON, GREAT YARMOUTH HOSPITAL.

THE following case came under my notice recently, and seems worthy of record.

A married woman, aged 85, enjoyed good health for her age. On Feb. 2nd she told her son she was going out to collect her old age pension. He left the house at 4.40 P.M., when she had her things on ready to go out. He returned at 8.15 P.M., and found her lying in a heap in a corner of the room, dead. He called me in; I satisfied myself that she was dead and told him that I must inform the coroner.

At autopsy I found the body well nourished, with no marks of external violence. On opening the pericardium I found it distended with fluid blood and large clots. Altogether there must have been quite four ounces. On mopping up the fluid blood and removing the clots, I found nothing abnormal on the anterior surface of the heart, but on raising the apex and examining the posterior surface I found three vertical purple lines, the two external ones being nearly three-quarters of an inch, and the central one a quarter of an inch, in length. These on closer examination proved to be slit-like openings in the visceral pericardium. I then removed the heart. The aorta and aortic valves presented nothing of note, but on cutting into the heart muscle it proved to be extremely friable, and was greasy and fatty-looking. On cutting down to the apex of the left ventricle I found a dark clot firmly attached at a point near the septum and about one inch from the apex, corresponding to the openings on the posterior surface. Cutting into the muscle, after removing the clot and exposing the opening on the inner surface, I found minute clots in the substance of the heart wall. Evidently the inner wall ruptured first, and then the blood gradually dissected its way through the wall of the ventricle, finally bursting into the pericardium and causing death by pressure.

The predisposing cause here was, no doubt, old age and a fatty heart. There could hardly have been any great exertion. It seems doubtful even whether the old lady left the house.

Great Yarmouth.

A CASE OF TRAUMATIC RUPTURE OF THE AORTA.

BY P. ROWLAND KEMP, M.B., CH.B. EDIN.,
CASUALTY OFFICER, LONDON TEMPERANCE HOSPITAL, N.W.

THE following case is of sufficient interest to merit record.

On Jan. 17th, 1923, a male, aged 46, was admitted, dead, to the casualty department, with a history of having been struck on the head and chest by a portion of a stone fly-wheel which had separated while revolving at full speed in a motor works. He had a large abrasion over the sternum, an abrasion over the right malar bone, and an incised wound of the chin.

Post-mortem findings were as follows:—

Thorax.—An extravasation of blood into the subcutaneous tissues, and underlying the pectoralis major, in area of abrasion. An extravasation of blood into the anterior mediastinum. The sternum was fractured obliquely from above downwards and backwards at the level of the third to fourth costal cartilages. The lungs were deeply congested. The pericardium was greatly distended with blood which had escaped from a transverse tear of the aorta, just beyond the line of the aortic valve. The exuded serum was under considerable pressure.

Skull.—Beyond a firm adhesion of pia mater to dura over the upper part of the right posterior segment of the cerebrum, nothing abnormal was detected in the cranium.

For permission to publish the notes of this case I am indebted to Dr. H. H. Sanguinetti, pathologist to the London Temperance Hospital.

THE Cambridge University Press announce that they will publish "The Domain of Natural Science," by Prof. E. W. Hobson, Sc.D., LL.D., F.R.S., during the summer.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting will be held to-day, Friday, May 11th, at 8.45 P.M., at the Miller General Hospital, Greenwich, London, S.E. The President, Dr. W. H. Payne, will take the chair.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY: ANNUAL CONGRESS.

(Concluded from p. 899.)

Mr. D. V. GIRI contributed a paper on
*Intracapsular Extraction of Cataract, with Description
of a Simple Technique.*

It was based on 384 cataract operations he did at Bikaner, Rajputana, India. He had to resort to the intracapsular operation because his patients came long distances, were very poor, and time was of great value to them. One patient became so restless after the incision, and rolled his eye so much, that the operation could not be done step by step; hence the operation had to be done speedily, and he therefore expressed the lens in its capsule. Very little pressure was needed, and it came away without mishap. After that he proceeded deliberately to take out the cataract in toto. He described his procedure. The lids were best held apart and controlled by an assistant throughout the operation. For immature and intumescent cataracts the intracapsular was, he said, the operation par excellence. If capsulectomy was properly done, the mature hard cataracts shelled out easily as a whole. In a large percentage of mature and hard cataracts the capsulectomy operation gave results which compared favourably with the intracapsular. The worst cataracts to deal with were the hypermature and complicated. Mr. Giri discussed minutely every step of the procedure and compared it with other methods.

The Bowman Lecture was delivered by Prof. G. E. DE SCHWEINITZ (President of the American Medical Association). He took as his subject *Certain Ocular Aspects of Pituitary Body Disorders*, mainly *Exclusive of the Usual Central and Peripheral Hemioptic Field Defects*. (The Lecture was annotated last week, p. 912.)

Disorders of the Blood and their Ophthalmological Manifestations.

A discussion on this subject was held on April 27th. Sir HUMPHRY ROLLESTON, in opening the discussion, said that whereas patients with renal disease, arteriosclerosis, or affections of the central nervous system might first seek medical advice on account of ocular symptoms, and a diagnosis of underlying general disease might be made from the local changes, such was rarely the case in disorders of the blood. The disorders which he discussed were erythremia, pernicious anæmia, subacute combined degeneration of the spinal cord, aplastic anæmia, chlorosis, secondary anæmia (post-hæmorrhagic), splenic anæmia of adults and of infants, leukæmia (with chloroma), scurvy, purpura, hæmophilia. The underlying cause of erythremia was still a matter for further research; possibly it might prove to be a syndrome due to various causes. The frequency of ocular manifestations in it was as yet indeterminate. The visual disorders were variable, and could not be solely explained by the appearance of the fundus. In pernicious anæmia small retinal hæmorrhages were usually present; according to Cabot they occurred in over 70 per cent., and they were said to be seen when the red cells fell to 25 per cent. of the normal. In subacute combined degeneration of the cord the ocular manifestations were mainly those of anæmia—dimness of vision and pallor of the disc; also slight papilledema. There might be sluggishness, small size and inequality of the pupils, and nystagmus, owing to degeneration in the cervical cord. Retinal hæmorrhages and neuro-retinitis might occur in aplastic anæmia. In some of the cases of this now rare disease there was permanent impairment of vision. In severe secondary anæmia, hæmorrhages into the retina were very common, and this was probably chiefly due to the underlying toxæmia. In the chronic splenic anæmia of adults he did not know of

any special changes in the fundus. In the splenic anæmia of infants (Von Jaksch's anæmia pseudo-leukæmica infantum) retinal hæmorrhages probably occurred, but he could not state with what frequency. In Gaucher's disease the conjunctivæ showed a wedge-shaped thickening of brownish-yellow colour with its base to the cornea, first appearing on the nasal side of each eye. Foster Moore described three stages in the retinal changes accompanying leukæmia: (1) engorgement of the vessels, chiefly the veins; (2) the previous engorgement was accompanied by hæmorrhages having a central white spot, due to leucocytic accumulation; (3) a general leucocytic infiltration of the retina and choroid, causing thickening. Contraction of visual fields and night-blindness might also result in this disease. The visual symptoms were not of diagnostic importance in scurvy. Infantile scurvy might show petechiæ of the eyelids. In purpura flame-shaped hæmorrhages into the nerve-fibre layer of the retina were not uncommon, according to Foster Moore. In hæmophilia the retina may be free from hæmorrhages.

SIR FREDERICK ANDREWES, F.R.S., spoke on the pathology of disorders of the blood in relation to the eye. Functional disturbances of vision did not need much attention. When through heart failure or thrombosis the blood-supply to the retina was cut off or seriously reduced, vision might fail. In ordinary syncope temporary failure of sight might occur without structural change. Yet vision did not appear to fail in even the extreme degrees of pernicious anæmia; only in the post-hæmorrhagic form of anæmia did temporary blindness sometimes occur. Yet vision was commonly affected in the converse condition, erythræmia, in which the red cells and the total volume of blood were increased. Visible changes in the fundus took place as vascular alterations in blood conditions, and nowhere could the changes be so well studied. He believed that in chlorosis there was an increase in the fluid elements of the blood, and this was the only form of anæmia in which papilloedema had been observed to occur. He discussed oedema, extravasation of leucocytes, escape of red corpuscles, and leukæmia, remarking that it was possible the retinal hæmorrhages in the last-named depended in part on a weakening of the capillary wall from the emigration of leucocytes. He also entered into a minute consideration of the function of the blood platelets.

DR. A. J. BALLANTYNE said that more than 50 per cent. of the cases of anæmia and leukæmia he saw in nine years showed fundus changes of some kind, including alterations of the calibre, course and colour of the vessels, oedema of the retina, retinal hæmorrhages, and retinal exudates. In simple anæmias there was a tendency to broadening of both arteries and veins, also to an abnormal tortuosity. Pallor of the discs was often visible, but notable pallor of the fundi was exceptional. Hæmorrhages were never found in the retina when the hæmoglobin was higher than 35 per cent. Often the hæmorrhages and exudates cleared up when the patient was at rest in bed.

MR. R. R. JAMES said he had not seen fundus changes in chlorosis. He detailed the blood picture found in the various classes of cases he had examined during a period of 14 years' hospital observation.

DR. BALLANTYNE read a paper on Some Illustrations of Retinal Vascular Disease, and of Fundus Lesions in Diseases of the Blood.

MR. WILFRED TROTTER introduced a discussion on the *Diagnostic Significance of Proptosis*.

He said diagnosis was still essentially a clinical procedure carried out in the face of experience presented to the medical man unselected and at random. He intended to present in this paper only material which came directly within his own knowledge, restricting his consideration to the grosser forms of proptosis. A broad division of cases could be made according to whether the eye was displaced antero-posteriorly alone, or whether the antero-posterior projection was combined with some other

displacement. The first of these depended on swelling of the orbital tissues from inflammatory conditions or circulatory disturbance, the others to encroachment upon the orbital space by a swelling—generally a neoplasm—originating within or without it. The general surgeon mostly saw the first group in connexion with traumatic orbital hæmorrhage, thrombosis of the cavernous sinus, arterio-venous aneurysm within the skull, and Graves's disease. These he considered in detail. In the second group the cause at work was a swelling originating within or encroaching upon the orbit. The great point to determine was whether or not the cause was a malignant tumour. It usually was so when the eye was displaced forwards and also in the coronal plane. Such benign conditions, however, as mucocele of the accessory sinuses, exostosis of skull, and benign nasal growths could cause it. Malignant growths could be divided into those invading the orbit according to their place of origin, into those of ethmoid, sphenoid, and maxillary regions. Growths of the ethmoid and maxillary regions produced marked and early displacement in the coronal plane; growths of the sphenoid region tended to produce a downward and lateral displacement at a later stage. All these forms of malignant disease were of insidious onset, and often when their true nature was recognised they were beyond the hopeful reach of surgery. Growths of the ethmoid region were usually recognised by the rhinologist, in whose domain they came. Sometimes their course could be definitely delayed by operations which, at the time, appeared to be very unpromising. Growths in the sphenoidal region presented the greatest difficulties in early diagnosis; they were usually endotheliomata or sarcomata of the periosteal type. Sometimes they might be slowly developing for several years before causing unmistakable symptoms.

MR. J. H. FISHER gave a general review of the subject. The term "proptosis" directed attention to something retro-ocular which was propelling the eye forward, or, more correctly, a falling forward of the eye because it was imperfectly restrained in its orbit by muscles. The prominent eyes of very obese persons occasionally brought them within the title, and he had had to perform tarsorrhaphy for this condition; this possibility should be kept in mind in diagnosis. Foster Moore had found the fat in the orbit in Graves's disease to be in an abnormal condition; but Treacher Collins considered that Müller's muscle caused the condition, regarding it as the homologue of the "protrusio bulbi" muscle of lower animals. The proptosis in Graves's disease was not always symmetrical, nor of synchronous onset in both eyes. In both this disease and orbital tumours X rays were often of but little value. As removal of optic nerve tumours, whether with or without resection of the outer orbital wall, rarely left a passable cosmetic result, he strongly advised removal of the blind eye with the growth in every instance. Traumatic exophthalmia would depend on the presence of a foreign body lodged in the orbit, or the pressure of extravasated blood, or infiltration of the tissues with air through the fractured walls of the orbit from the nose or some of its accessory sinuses. Hæmorrhage into the orbit might occur without accident, such as in children suffering from whooping-cough or scurvy, in hæmophilics, and in later years of life it was attributable to arterio-sclerosis. Cysts following hæmorrhage had been described. Congenital dermoid was the most frequent cyst of the orbit; others included hydatid and cysticercus, but these could only be proved by examination after operation. Cellulitis and infective osteitis of the orbit were easy to diagnose. In all cases of proptosis with inflammatory manifestations examination should be made for paralysis of any of the nerves running in the floor or outer wall of the cavernous sinus. Vascular tumours of the orbit with proptosis must be differentiated into pulsatile and non-pulsatile, the latter being mostly cavernous angiomas. He advocated association with the neurologist in dealing with intracranial causes of proptosis; these he dealt with *seriatim*. Similarly, in cases of extension of growths from the

accessory sinuses of the nose, the assistance of the rhinologist might be needed in dealing with septic conditions in those cavities. The rhinologist invoked the aid of the radiologist, but both together often gave the ophthalmologist less assistance than he needed.

Dr. ANGUS MACGILLIVRAY said the apex of the cornea was between 12 and 14 mm. in front of the temporal margin of the bony orbit; when readings of over 14 mm. were taken, exophthalmos was present, when under 12 mm. enophthalmos. The routine use of the exophthalmometer was desirable. Proptosis due to increase in the orbital contents was the result of certain inflammatory, pathological, or traumatic conditions originating in the orbital cavity, such as periostitis, cellulitis, neoplasms, vascular derangements, and thickening of orbital walls. These were the main conditions causing proptosis which the ophthalmic surgeon was likely to be called upon to treat. He divided proptosis, for diagnostic purposes, into (a) bilateral, and (b) unilateral, the first being much the smaller division. He discussed them at length and said, in conclusion, that after 28 years of experience in the ophthalmic department of a large general hospital, he and his colleagues had come to regard proptosis as a danger signal, and the help of colleagues in other departments was sought without delay in arriving at a cause.

A Clinical Meeting.

In the afternoon a clinical meeting was held at London Hospital, where Mr. C. B. GOULDEN provided a series of cases for inspection and discussion.

Mr. W. T. HOLMES SPICER read a paper on Secondary Corneal Opacities.

Mr. F. A. WILLIAMSON-NOBLE read a paper on

Macular Changes Associated with Thrombosis of the Central Retinal Vein.

He described the appearances in four cases. In one case the sight of the patient, who was aged 27, had been failing 18 months before excision of the eye. There was old interstitial keratitis, the cornea being opaque and ectatic. He exhibited micro-photographs of sections cut at different levels. It showed the usual picture in venous thrombosis, and the thrombosis had occurred in the region of the lamina cribrosa. Sections of the half eye showed vascularisation of the middle and deeper layers of the cornea, and hæmorrhage in the nerve-fibre layer of the retina. There was slight oedema in the external molecular layer of the macular and perimacular region. He concluded (1) that in cases of thrombosis of the central retinal vein, a varying degree of oedema developed in the region surrounding the fovea, causing damage to retinal structures here; (2) that if oedema were of old standing or large in amount, some of the fluid percolated through the subretinal space, caused detachment of retina in the macular region, bringing about its degeneration.

Mr. F. A. ROSS and Dr. SHEPHEARD-WALWYN contributed a paper, illustrated by photographs, on a case of

Mikulicz's Disease.

The patient was a married woman, aged 37. The bulging below the eyebrow was found to be due to a finely-nodular enlarged lacrimal gland. There were the usual symptoms and physical characteristics of the disease. The urine was normal, and the W.R. negative. Immediately preceding death she had air-hunger, cyanosis, and oedema of both lungs, the physical cause of death being acute nephritis and uræmia. The tubules of the lacrimal gland, according to Dr. Canti's report, were normal, but were pressed apart by masses of round cells containing a few fibroblasts and fibrous tissue cells. The various treatments tried and the clinical course were carefully set forth.

A number of other contributions were also submitted.

Dr. MACGILLIVRAY read a paper on

Enucleation of the Eyeball under Local Anæsthesia.

He pointed out that the services of the expert anæsthetist were not always available, and in his absence

the administration might be indifferent. In the search for a suitable local anæsthetic, a 2 per cent. novocaine solution was fixed upon, owing to its comparatively low toxic properties, and in practice their confidence in it had increased. The solution consisted as follows: novocaine, 10 gr.; sodii chloridi, 2 gr.; potass. sulph., 1½ gr.; aq. destill., 3 l. It should be kept in a stoppered bottle, and could be sterilised more than once without deterioration if adrenalin were not added. He described the procedure in detail. It was not necessary to prepare the patient as for general anæsthesia. To neurotic or frightened patients two 5-gr. doses of veronal were given the previous day—i.e., at 5 and 10 P.M. The method could be easily adapted to all forms of extra-ocular operations. He believed that when once the details of the method of securing local anæsthesia had been properly grasped, it would become the routine, general anæsthetics being reserved for young children.

Microscopy of the Living Eye.

Mr. BASIL GRAVES described, with diagrams, the main principles of illumination of the eye, and discussed the selection of a suitable nomenclature for certain conceptions which, arising out of this new work, at present, he said, lacked suitable definitive terms. He felt that a vague, equivocal or unjustified use of certain terms was creeping into the English-written literature of the subject. Some of these terms had a very precise significance in the nomenclature of the physics of light, and he suggested that, for the present, the unsubstantiated appropriation of these was apt to lead to confusion amongst writers, and lacked scientific accuracy. He suggested certain non-committal terms (to indicate various clinical effects which he showed by diagrams). One of these was "relucency" for that property of a transparent living tissue in virtue of which a beam of light traversing it underwent modification to be revealed as a manifest illumination of the tissue. He demonstrated a small portable hand appliance to yield an intense beam 4 mm. in diameter, for use in inspecting the eye, or in such operations as needling, with the aid of which the operator could clearly see the membrane to be needled by taking his view through tissue whose transparency was not impaired by aberrant rays of light. He discussed the Zeiss binocular eye-microscope, and described means by which the optical system of its illuminator could be improved for practical routine work.

During the period covered by the Congress, an exhibition of instruments and appliances was held in the Marcus Beck Laboratory of the Royal Society of Medicine.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOTOLOGY.

At a meeting of this section, held on April 20th, Sir CHARLES BALLANCE presiding, a discussion took place on the morbid anatomy and drainage of

Otitic Meningitis.

Mr. EDWARD D. DAVIS, who introduced the subject, based his remarks upon 13 autopsies and a number of specimens seen in London museums. Otitic meningitis of the middle fossa and cortex of the brain was, he said, much more frequent than that of the posterior fossa, and it was usually secondary to a temporo-sphenoidal abscess, or there was localised meningitis. In the 13 autopsies, thick gelatinous pus was always found in the cisterna interpeduncularis, and it extended thence into the subarachnoid space, along the large cerebral vessels. In front, the pus spread along the optic chiasma and anterior cerebral artery to the longitudinal fissure, to form a collection above the corpus callosum. More frequently, suppuration extended backwards by the posterior cerebral arteries and around the crura to form an abscess between the tentorium and the superior surface of the cerebellum. Collections of pus were present at the following situations: in the internal auditory meatus

and posterior surface of the petrous bone in front of the lateral sinus; in the cisterna interpeduncularis; between the tentorium and the superior surface of the cerebellum; and in the longitudinal fissure above the corpus callosum.

In order to demonstrate the paths of infection, a series of experiments were carried out on the cadaver, the subarachnoid space being injected with a solution of methylene blue passed through the internal ear and internal auditory meatus; and at a subsequent examination, when the skull cap had been removed, the methylene blue was found, in every case, in the cisterna interpeduncularis, extending to the optic chiasma, and backwards around the crura to the interval between tentorium and cerebellum, but no blue was present in the cisterna magna nor in the ventricles. And when the injection was made through the dura mater in front of the lateral sinus, to resemble infection by sinus phlebitis, the pigment was limited to the under surface and posterior aspect of the cerebellum, extending to the incisura posterior and the cisterna magna. A series of other tests led to the conclusion that repeated lumbar puncture during life did not increase the area of suppuration, and that lumbar puncture was inefficient as a method of drainage.

The research also seemed to justify the following conclusions:—

1. When the cisterna interpeduncularis or cisterna magna contained pus, efficient drainage was difficult. Hence to save life, early diagnosis was most important. An infection through sinus phlebitis gave an idea of a better prognosis than when through the internal ear.

2. When meningitis arose through the labyrinth, drainage and suction by a syringe through the internal auditory meatus was most likely to be successful.

3. If meningitis arose from sinus phlebitis, drainage and suction should be established both behind and in front of the lateral sinus; here an occipito-atlantal puncture might be useful.

4. Lumbar puncture was not a satisfactory drain for pus. It had been shown by experiment that if a bacteræmia was produced by the intravenous inoculation of *B. lactis aerogenes* or other organisms in animals a fatal meningitis was established by lumbar puncture or by the withdrawal of cerebro-spinal fluid; but meningitis did not occur in those septicæmic animals from which cerebro-spinal fluid was not withdrawn. This work suggested that G. J. Jenkins was right when he said that the smallest quantity of cerebro-spinal fluid necessary for diagnosis should be withdrawn.

Mr. J. F. O'MALLEY asked what set of symptoms would induce Mr. Davis to open direct through the labyrinth, or to put a drain in the wall of the antrum, in front of the lateral sinus.

Mr. T. B. LAYTON said this contribution seemed to show that lumbar puncture should only be done after due care and consideration, as it was not wholly free from danger.

The PRESIDENT said the importance of this subject lay in the fact that the treatment of such cases was a matter of life and death. He had known sudden death occur from lumbar puncture. A vital point was whether organisms were present in the cerebro-spinal fluid or not. Sometimes he had found that the milky condition of the fluid was due simply to the presence of cells, not micro-organisms. If no organisms were in the cerebro-spinal fluid, the patient would very probably recover. There was no doubt that the only treatment of these cases was by operation; but it should be done, if possible, within a short time of what appeared to be the onset of the meningitis. The usual hospital experience, however, was that cases were seen too late. He did not agree that occipito-atlantal puncture should replace drainage. The important requirement was some means of reducing the pressure of fluid in the great cerebellar cistern.

Mr. DAVIS, in reply, said occipito-atlantal puncture was now frequently done in America, particularly for spinal tumours, and he thought it might be useful instead of Haynes's operation. When it was considered that a patient had meningitis arising from labyrinthitis drainage should be done through the internal auditory meatus and the labyrinth.

Complete Deafness after a Fall.

Sir JAMES DUNDAS-GRANT showed a man, aged 48, who 3½ years ago became quite deaf after falling on to his feet from a height of 6 ft. He did not strike his head, but during several days he had pain in his neck. During the night he had diarrhoea and vomiting and next morning he was deaf. The tests which were carried out suggested concussion of both labyrinths. A variation in symptoms showed there was a functional element in the case. He also showed a patient, a lady aged 29, whose deafness was much increased by a fall.

Mr. F. J. CLEMINSON related a case in which a man, when sleeping in the saloon of a steamer, was struck on the head by a large slab of marble, producing not only traumatic neurasthenia, but also considerable deafness in both ears, which the tests seemed to show was nerve deafness.

Mr. O'MALLEY referred to a case he had of sudden deafness without a precedent injury. He had her vestibular reaction tested, and there was a good response. He could not understand how the deafness had occurred. He thought the second patient of Sir James Dundas-Grant had otosclerosis.

Mr. DAVIS said that during the war he saw several cases of injury—by bullet or shrapnel—in the region of the mastoid process. They never made any recovery, but remained very deaf. The ordinary concussion case, such as that due to a cab injury, resulting in deafness, did have improvement of hearing. If hearing in any case did not improve in six weeks he concluded that deafness was permanent, and he asked whether that was the general view.

Sir JAMES DUNDAS-GRANT, in reply, pointed out that a heavy fall on the feet sometimes caused a fracture at the base of the skull. And such a fall might damage such a delicate organ as the ear even if the force was not sufficient to fracture the skull. In some of the mastoid cases he thought there was a fracture of the internal ear, or it might be so violently disturbed that it became thereafter peculiarly sensitive and might be completely destroyed by hæmorrhage into it. He agreed that if no improvement of hearing occurred in six months something more than mere concussion was present.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SURGICAL SECTION.

A MEETING of this section was held on April 27th at the Royal College of Surgeons in Ireland, Sir WILLIAM WHEELER in the chair.

Exhibition of Cases and Specimens.

Mr. A. K. HENRY showed a needle for ligature of the middle meningeal artery in gasserian operations.—Mr. A. A. McCONNELL said that he had used this needle, and he thought it an extremely useful instrument.

Mr. R. A. STONEY showed a urinary calculus from a man aged 33, who had had pain in his back for about three years. At the beginning of the attack for which he came into hospital, he had hæmaturia, lasting for about ten days. X rays showed a large dense shadow in the renal area; a second X ray showed the same shadow. Pyelo-lithotomy was performed and the pelvis sutured. There was practically no discharge from the wound, but on the fourth day a considerable amount of blood was present in the urine. This lasted for about a week and then cleared up. After three weeks the patient left hospital and had since remained perfectly well.

The PRESIDENT showed a specimen (with X ray photographs) of total gastrectomy for precancerous ulcer of the stomach. The patient was a woman aged 60, who had a history pointing to a gross gastric lesion for about 14 months. A gastric ulcer was tentatively diagnosed, but was not definitely confirmed.

after X ray examination. On opening the abdomen a deeply excavated ulcer, about the size of a shilling, was discovered on the posterior wall at the cardiac end. The edges were raised and hard, and the glands around the lesser curvature were enlarged. The age of the patient, the induration of the ulcer, and the nature of the glands suggested that malignant change had taken place, and, in any event, it was felt that such an ulcer in an elderly woman should be considered precancerous. Total gastrectomy was performed and Sir William Wheeler pointed out the use of De Martel's clamps in overcoming the technical difficulties of the operation. Microscopical sections showed no evidence that any malignant change had yet taken place. The patient made an admirable recovery and now prefers solid to liquid food.

Dr. T. G. HARDMAN, who had X rayed this patient, showed films. When an opaque meal was given to the patient a very definite filling effect was shown on the lesser curvature in the recumbent position, but was not present when the patient was in the upright position. Consequently a tentative and not an absolute diagnosis of ulcer was made.

Mr. H. STOKES did not think the President could have done anything but total gastrectomy in this case and Mr. W. PEARSON agreed with this opinion.

Dr. H. B. GOULDING asked how long it was since the operation had been performed and whether the patient was losing or gaining weight.

Mr. C. J. MACAULEY said he thought unless one was absolutely convinced that the ulcer was malignant it was too radical to take out the whole stomach.

The PRESIDENT briefly replied.

Mr. McCONNELL described the technique of colopecty.

Miss K. PORTLEY reported a case of

Ascaris Appendicitis.

The patient, a boy, was admitted as a case of acute appendicitis. At operation the mesentery of the ileo-cæcal junction was studded with tubercles with a slight amount of pus in the right iliac fossa. A worm about six inches in length, of the *Ascaris lumbricoides* type, was found free in the peritoneal cavity. The ascaris had apparently made its exit from the alimentary canal by perforating the tip of the appendix. Miss Portley reviewed the literature of appendicitis arising from infection parasites, and stated that she could find no mention of the ascaris.

Mr. W. DOOLIN read a paper on

Intestinal Occlusion in Tuberculous Peritonitis.

A young motor mechanic was admitted to St. Vincent's with symptoms suggestive of subacute sigmoid obstruction. Laparotomy disclosed widespread miliary peritoneal tuberculosis of the adhesive type, too extensive to warrant resection of the ileo-cæcal segment, which was apparently the primary focus of the disease. After a period of seven weeks' post-operative X ray therapy the patient was sufficiently recovered to leave hospital for sanatorium treatment. Prognosis in this type of case might be looked on as serious. The simulation of the "acute abdomen" by acute peritoneal tuberculosis was rare, though a few references were to be found in French and American surgical literature.

SECTION OF PATHOLOGY.

A meeting of this section was held on April 20th. Dr. W. D. O'KELLY, the President, was in the chair.

Dr. W. BOXWELL described a case of

Brain Sarcoma.

The patient, a boy $4\frac{1}{2}$ years, was admitted to hospital suffering from convulsions. He recovered after a hot bath, but a later attack had to be treated with chloroform. Previous to the convulsions he had been lively, talkative, and precocious. While in hospital he vomited solid food, and had severe headaches. He answered questions intelligently, but his cerebration and reaction time were slow. Pulse 90, B.P. 80, T. normal. The cerebro-spinal fluid was under considerable pressure, but contained no cells. He died

after eight weeks in hospital, having become blind before his death. The brain showed an extensive cellular infiltration extending under the pia; this consisted of round cells apparently sarcomatous; he believed that he could trace their origin from the choroid plexus of the fourth ventricle.

Mr. T. T. O'FARRELL could see no connexion between the small tumour in the roof of the fourth ventricle and the main tumour; he asked whether the question of chloroma had been considered.—Dr. J. T. WIGHAM said that the tumour might easily be endothelial in origin, although the cells were like those of a round-cell sarcoma.—Dr. BOXWELL, in reply, said that the tumour was perfectly white in colour.

Sir JOHN MOORE read notes on

Two Cases with Unusual Sequelæ.

The first was a case of pneumonia in a girl, aged 18, admitted to hospital on Jan. 1st after five weeks' illness from what was stated to be pneumonia. She was thin and pale, had a persistent cough, and abundant sputum. The sputum was examined three times for tubercle bacilli with negative results; a Widal test was also negative. An exploratory puncture in the dull area over the base of the left lung was made twice, but without tapping any collection of fluid. The liver was greatly enlarged. Towards the end of January the patient's condition became critical. The lower limbs became anasarcaous, and severe pain set in in the right thigh, apparently due to thrombosis, which finally extended up to the inferior vena cava. The breath and sputum were foetid. On Feb. 20th a pleural friction rub was detected over the base of the right lung. Temperature became subnormal on the 24th and remained so till death on the 27th. Post-mortem findings were: abscesses in liver, spleen, left perinephric region, and lower lobe left lung. (Esophagus, liver, left lung, left kidney, all adherent to diaphragm. Pus from the liver abscess contained long chains of streptococci. Tubercles were found in the liver, which was extensively infiltrated with fat.

The second patient, a woman aged 56, was admitted to hospital on March 3rd, extremely emaciated, and wearing a look of great physical suffering. She had had for nearly a year gnawing pains over the upper part of the abdomen, which was very tender on pressure. She was also suffering from loss of appetite, vomiting, and constipation. She was losing flesh rapidly, and during the first nine days in hospital she lost 2 lb. Any attempt to take food brought on sickness, and she vomited frothy stuff, and on two occasions blood. Her pulse-rate was persistently quick—100 to 120, respirations 24 to 26, and temperature usually subnormal. On examination a tumour in the lower part of the epigastrium near the middle line was found, and enlargement with hardness of the inguinal glands. A diagnosis of carcinoma of the stomach was made, and the case was pronounced to be inoperable; a screen examination confirmed the diagnosis. The patient lived until March 25th, when she collapsed suddenly and died quickly of hæmorrhage into the stomach. Post-mortem findings: When the peritoneal cavity was opened, there was an escape of a large quantity of clear, straw-coloured fluid. The falciform ligament was greatly thickened, and was hard and nodular. The gall-bladder was adherent to the duodenum. The pyloric end of the stomach was firmly bound down by dense adhesions. The spleen was closely adherent to the greater curvature of the stomach. The peritoneum had a number of nodules scattered over it, and there were several enlarged, hard glands in the mesocolon. The liver was rather small, but showed no secondary nodules. The stomach was small; the wall was hard and thickened. When opened, the stomach was found to be full of blood. In the posterior wall, near the pylorus, was a large crater-like ulcer, with a fungating growth in the centre of it. The diaphragm was studded throughout with secondary growths, some of which were the size of a shilling.

Dr. BAREND VIVIER demonstrated the specimens. There were two abscesses in the first case, one in the liver and the other in the base of the left lung penetrating the diaphragm and involving the spleen and left kidney.

Dr. O'FARRELL said that he would like to ask what the origin of the sepsis in the first case was, and if a blood culture had been taken. He would also like to know if the œsophagus was quite normal. Sometimes foreign bodies were found in the œsophagus, and gave rise to conditions like those described. It would be interesting to know what the source of infection in this case was, and if it was a primary focus.

The PRESIDENT said that, regarding the first case, he was satisfied that there was no tuberculous lesion in the lungs, and he was inclined to think that this

was not an ordinary case of tuberculosis, on account of the absence of tubercle bacilli in the sputum, but that the tubercles in the liver were a subsidiary chance infection. The second case was extremely interesting. He thought that hæmorrhage in such a case was uncommon. The freedom of the liver from any growth was a point of importance.

Mr. HENRY STOKES said that, regarding the first case, before the needle was put into the patient's chest she was X rayed. There was at that time no pleural effusion, and, according to the X rays, any abscess must have been small. It had certainly not penetrated the diaphragm.

Sir JOHN MOORE, in replying, said that in the first case no blood culture had been made. He had not looked for any evidence of actinomycosis. He was of opinion that this was really originally a case of pneumonia, and that the infection took its origin in a very seriously damaged left lung. Regarding the second case, he looked upon it as undoubtedly one of ulceration of the stomach, and he thought that this accounted for the illness up to a comparatively short time before death. The fact that cancer of the stomach might supervene on an ulcer was demonstrated in this case.

Dr. O'FARRELL read notes on cases of cylindroma of parotid region, adenosarcoma of kidney, and basal cell cancer of neck.

Reviews and Notices of Books.

CLINICAL PATHOLOGY.

Clinical Laboratory Diagnosis. By ROGER SYLVESTER MORRIS, A.B., M.D., Professor of Medicine in the University of Cincinnati. London and New York: D. Appleton and Co. 1923. Pp. 456. 25s.

THIS book is designed to bring under one cover all the laboratory methods which may be of use in the investigation of cases. In the compiling of such a manual the author is faced, first, with the problem of the arrangement of his matter, and then with that of selection and rejection among the multifarious procedures of clinical pathology, bacteriology, and chemistry. The matter of the present volume is arranged under nine heads—Fæces, Blood, Urine, and so forth—each dealing with one particular sort of material for examination. This arrangement makes for ease in the location of any desired procedure, but is purely arbitrary and tends to result in a sacrifice of a proper understanding of the principles underlying any particular line of investigation to a certain rule-of-thumb facility. In his solution of the problem of what to omit and what to include the author has for the most part shown judgment, but some method of estimating renal function in addition to the pthalein test of Rowntree and Geraghty might well have found a place; and it is surprising to find no reference to the fat-fatty acid ratio in the fæces as a help in the diagnosis of pancreatic disease. Space might well have been saved by the omission of details of a number of procedures of doubtful value. Ehrlich's diazo-test, for instance, has not much place in modern medicine, and in the present state of knowledge little useful clinical information can be derived from the estimation of the cholesterol, fatty acids, or amino-acids of the blood. Details of the technique of these procedures have no place in a clinical manual. In the section on blood no satisfactory criteria are given for the differentiation of large lymphocytes, large "mononuclears" and "transitionals"; as such do not exist, this is hardly surprising, but the author might have saved the conscientious student a lot of worry by saying so. The sections on parasitology are full and contain much useful matter. The chemistry of the blood is dealt with by Drs. Raphael Isaacs and David S. Hachen. Ample details of the technique of all the procedures described are given.

An excellent feature of the book is the multiplicity of references—a less satisfactory one is that few of the illustrations are original.

Clinical Laboratory Methods. By RUSSELL LANDRAM HADEN, M.A., M.D., Associate Professor of Medicine, University of Kansas, School of Medicine, Kansas City, Kansas. London: Henry Kimpton. 1923. Pp. 294. 18s.

THIS volume covers the whole range of clinical laboratory technique. The author aims at providing well-trying methods; and, where possible, he reduces the procedure to a single test; with the result that, for the ground covered, a valuable volume has been produced in the minimum of space. The one disadvantage to readers here is that the methods recommended may not be those which, by common use, have become well established in this country. The usual routine of laboratory work, both pathological and bacteriological, has been included, and of the tests recommended both the procedure and the preparation of the necessary solutions are given together. The book contains an account of new work in biochemistry and the section on the quantitative chemical examination of the blood is very complete in this respect. A special feature is the chapter on Miscellaneous Clinical Pathological Examinations, and that on Chemical Procedures and Solutions; dealing among other things, with the use of the colorimeter and nephelometer, the preparation of volumetric solutions, the calibration of volumetric apparatus, and the colorimetric determination of the H-ion concentration of biological fluids. While it is probable that the clinical value of some of the elaborate technique recommended has yet to be established, Dr. Haden has nevertheless compiled a comprehensive and practical volume appealing both to the advanced student and the beginner in laboratory work.

The volume is of a convenient laboratory size and is well printed; illustrating the text are fine colour plates and 69 photographs and diagrams.

THE PIRQUET SYSTEM OF INFANT FEEDING.

Die Ernährung gesunder und kranker Kinder. By Dr. EDMUND NOBEL, Universitäts-Kinderklinik, Vienna. Vienna, Leipzig, Munich: Rikola. 1923. Pp. 74.

ALTHOUGH the Pirquet system of infant feeding upon which this book is based has gained few adherents in this country, yet Dr. Nobel has much to say that is of more than local interest. The book is divided into two parts, dealing respectively with theory and practice. In the first the principles of the *nem* system—the word *nem*, denoting 1 g. of standard breast-milk, being formed from the initial letters of the three words Nahrungs-Einheit-Milch—are set out with conspicuous clearness. Some of the points upon which stress is laid are those emphasised by our own pædiatrists, such as the need of absolute regularity in feeding and the regulation of the quantity of food according to the size and weight of the infant. The estimation of the exact quantity of food needed in a given case is obtained by Pirquet's *pelidisi* formula (*pelidisi* being derived from *pondus decies linearis divisum sedentis altitudine*), which is expressed as the cube root of ten times the weight divided by the sitting height, and in a normally developed infant is of the value of 100. The case for the Pirquet system with its rather forbidding nomenclature, is well set out; but the system suffers from at least two serious defects. First, the inadequate recognition accorded to the temperamental factor—an active, lively baby obviously needs more nourishment than a phlegmatic infant, even where the *pelidisi* index is the same. Secondly, save that the optimum protein-percentage is stated to be one-tenth of the total *nem* value, as in the case in breast-milk, and that a fat content in the diet amounting to at least 10 per cent. of the total food value is recommended, the question of balance in the food elements is practically ignored. After

careful study of the book it is still difficult to see in what respects the Pirquet system is an improvement upon the simpler calorie system.

The practical section of the book will have more interest for English readers. After a few remarks on the food requirements of the pregnant and nursing woman, Dr. Nobel details an excellent scheme for the feeding of healthy children from the first day of life until the end of the first year, the scheme being drawn up on the lines followed at the Kinderklinik in Vienna. For the first two weeks six to seven breast-feeds are given at three-hourly intervals during the 24 hours, the 3 A.M. feed being dropped after the third week. During the fifth month the child learns to drink from a spoon, a feed of milk broth being substituted for the mid-day breast-feed, while in the sixth month two such feeds are given. During the second half-year the child gradually learns to eat vegetables, stewed fruit, and biscuits, in addition to the four breast-feeds which are given daily till the end of the ninth month. Where, in the case of artificial feeding the quality of the cows' milk leaves something to be desired, the daily administration of lemon juice, and, in winter, of a small quantity of cod-liver oil, is recommended, emphasis being laid throughout on the value of the accessory factors in the diet. A number of useful recipes for preparing vegetable and other broths are given. The final chapters of the book are devoted to a discussion of the nourishment of sick children and to various arithmetical calculations.

Dr. Nobel's book is interesting and well written, and will repay careful study.

OPHTHALMOLOGY.

Diseases of the Eye. Fourth edition. By Sir JOHN HERBERT PARSONS, C.B.E., D.Sc., F.R.C.S., F.R.S., Ophthalmic Surgeon, University College Hospital; Surgeon, Royal London (Moorfields) Hospital. London: J. and A. Churchill. 1923. With 21 plates and 326 text-figures. Pp. 660. 19s.

This is emphatically a student's text-book, covering the whole ground of ophthalmology with no superfluous matter. It differs from larger text-books such as that of Fuchs in omitting all reference to some of the rarer diseases of the eye and in cutting down discussion of the subjects dealt with to what the author considers essential. It is therefore necessarily somewhat dogmatic, but this, from the student's point of view, is advantageous. To have mastered the contents of this book is to have been in close contact with a first-rate teacher and ophthalmologist, and even if the future ophthalmic surgeon finds occasion to modify the knowledge gained from it in particular points, he will certainly never regret having pinned his faith to it as a sound foundation on which to build. We would especially pick out for commendation the chapters on diseases of the fundus oculi. The varieties of fundus disease actually seen in the out-patient room are so many that the student deserves rather more information about them than he is vouchsafed in most text-books, and here he gets it, though we are sure that the author himself would be the last to claim that it is anything like exhaustive.

The diagrams and plates illustrating both the ophthalmoscopic appearances and the pathology of different forms of retinitis may be specially commended. The disease generally called "retinitis pigmentosa" is characterised by the author as "an extremely chronic, progressive degeneration of the choroid in both eyes." In this description he differs from the older authorities, and other points might be cited in which all might not agree with him—for instance, his advocacy of tenotomy in small degrees of squint and the somewhat half-hearted way in which he mentions antisyphilitic remedies in the treatment of interstitial keratitis. A feature quite new in this edition is a short section on preventive ophthalmology. In the chapter on the causes and prevention of blindness large use is made of Mr. Bishop Harman's evidence before the Advisory

Committee on the Welfare of the Blind. Under the heading "Hygiene of Vision," the subject of illumination is discussed.

That this edition will maintain the popularity of this book need not be doubted.

Text-book of Ophthalmology. By HOFERAT ERNST FUCHS, formerly Professor of Ophthalmology in the University of Vienna. Authorised translation from the twelfth German edition. By ALEXANDER DUANE, M.D., Surgeon Emeritus, Knapp Memorial Hospital, New York. Seventh edition, revised and reset. London and Philadelphia: J. B. Lippincott Company. 1923. With 455 illustrations. Pp. 997. 42s.

To the majority of English-speaking students of ophthalmology this is probably still the best-known text-book of the subject on a large scale that exists, though in recent years it has had to compete with others of a similar size. In previous English editions of the Fuchs text-book the translator and editor has modestly kept his own supplementary contributions confined within brackets. In the present edition he has not only done away with the brackets, but by rearranging the whole of the subject-matter and rewriting a great part of it has produced what is practically a new book. In so doing, he tells us, he has had the benefit of consultation with Dr. Fuchs and of comparison with the thoroughly revised thirteenth German edition just prepared by Prof. Salzmann. He has, we think wisely, omitted a considerable amount of non-essential matter which appeared in former editions, so that in spite of a great deal that is new the total bulk of the new volume is less by 70 pages than that of the sixth edition. As an instance of omission we may mention the explanations of the Young-Helmholtz and the Hering theories of colour vision, which no longer appear, while the additions to the text are far too numerous to mention. One of the most important is a fuller treatment of the perimetry of glaucoma. Even the chapter on motor anomalies of the eye, which in the sixth edition was largely the work of the translator, has been re-written. The sections on the anatomy of the eye are now grouped together so as to form the initial part of the book. The final part on the operative surgery of the eye is kept nearer to its previous form than most other portions of the book, though it is not without additions, as, for instance, a reference to epithelial inlays for contracted socket and outlays for lid operations, and a diagrammatic representation of the area laid bare by the conjunctivo-corneal flap of Elliot in his trephining operation. As, however, the descriptions of various operations are necessarily abridged it would add to the value of the book were references given to fuller accounts of some of them.

As a whole this new edition of a great work embodies a noble effort to retain its place as the premier text-book of ophthalmology.

PRACTICAL APPLICATIONS OF X RAYS.

By G. W. C. KAYE, O.B.E., M.A., D.Sc., A.R.C.Sc., F.Inst.P., Head of the Radiology Department, the National Physical Laboratory; President of the Röntgen Society. London: Chapman and Hall, Ltd. Pp. 135. 10s. 6d.

THIS book is based largely on a course of Cantor lectures delivered by the author before the Royal Society of Arts in 1921. Its main concern is with the practical uses of X rays. The first 72 pages are devoted to a succinct account of X rays and their physical properties, the different types of X ray tubes in current practice, the apparatus required for their excitation, and the methods used for measuring the wave-lengths and the intensities of beams of X rays. There is then a chapter of six pages upon the medical applications of X rays, followed by an account of some of the industrial uses to which the rays have been put. The most important of these may perhaps be said to be the examination of materials for the purpose of revealing flaws in structure and in

handiwork, notably in metals and timber, especially aeroplane parts, and in the detection of the work of the impostor in works of art. The volume is completed by three appendices, one on the report of the X Ray and Radium Protection Committee, one on X ray and electro-medical nomenclature, and one on atomic numbers.

The book is well illustrated by a number of line drawings and reproductions from original radiographs.

PRACTICAL PHYSICS.

By J. A. CROWTHER, Sc.D., F.Inst.P., sometime Fellow of St. John's College, Cambridge; Demonstrator of Physics in the Cavendish Laboratory; University Lecturer in Physics as applied to Medical Radiology, Cambridge. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 260. 10s. 6d.

THIS book on practical physics follows the general scope of the well-known Manual of Physics by the same author, and maintains the standard which this book has set in mode of presentation and in the help which it affords to the student in the more difficult parts of the subject. Dr. Crowther's foreword to the student, beginning with "To err is human," should do something towards reconciling the latter to the methods of exact measurement which are the main substance of the book. The scope of the subject is conditioned by the scope of the syllabus for the first medical examination, and however desirable it may be for the student to get familiar experimentally with forms of radiation other than light and heat, it is hardly justifiable for teachers to introduce the matter into their first medical courses. Probably Dr. Crowther has omitted these subjects for this reason.

If it be granted, and there are some teachers who will dissent, that text-books are required for the practical work entailed in a course of elementary physics, then it will be agreed that Dr. Crowther's book is likely to serve this purpose well. It is well illustrated by good line drawings, which enhance its value.

THE HOME AND HEALTH IN INDIA AND THE TROPICAL COLONIES.

By KATE PLATT, M.D., B.S. Lond., formerly Principal, Lady Hardinge Medical College and Hospital for Women, Delhi, India. London: Baillière, Tindall and Cox. 1923. Pp. 216. 5s.

A PLEASANTLY discursive little book, which will be appreciated by all women about to make their home in India. Dr. Platt has had the advantage of long residence in various parts of India in a capacity of teacher and medical adviser, and is thus in a position to supply information, friendly caution, and reassurance where these are most needed. Part I., entitled Making the Home, will be found of especial value, as though Parts II. and III., which are headed About the Nursery and Tropical Diseases, respectively, are readable enough, they deal sketchily and somewhat dogmatically with a great variety of topics, some of which cannot properly be disposed of in a few lines. Too little stress is laid on the need for ante-natal care and supervision, a subject which might well be developed in future editions.

Dr. Platt's book contains sound common-sense and should do much to encourage those women setting out to begin life under new conditions.

JOURNALS.

BRAIN. Vol. XLV., Parts 3 and 4.—Two Cases of Syringomyelia and Syringobulbia, Observed Clinically over Many Years and Examined Pathologically, by James Taylor, J. G. Greenfield, and J. P. Martin. Of the two cases recorded one had been observed continuously for 24 and the other for 19 years. The clinical course of the two cases was entirely different; in the one, the symptoms showed no change from the time the man first came under observation, while in the other the disease was throughout steadily progressive. Post mortem, the most striking contrast

was the inverse relationship of the cavitation to the process of gliosis. In the first case there was much more gliosis than cavitation, and it is suggested that the fluid within the cord had formed a channel by which it could escape into the subarachnoid space, and that the formation of this channel coincided with the arrest in the progress of the disease. More important than the increase of fluid within the cord as an ætiological factor may be a congenital instability of the glial tissue in the regions which the central canal of the cord occupies during foetal life.—A Study of the Cerebral Fibre Systems by means of a New Modification of Anatomical Methods; The Lateral Wall of the Thalamus and the Sagittal Portion of its Cerebral Fibre System, by Joshua Rosett. The author is of the opinion that careful dissection of properly hardened tissue, although the oldest, still remains one of the best methods at the disposal of the anatomist. His new method consists of two processes: (1) longitudinal sectioning; and (2) serial dissections. By the former it is possible to produce longitudinal sections of strands of tissue 10 cm. long, 3 or 4 mm. in width, and less than 1 mm. in thickness. The course of the fibre tracts may thus be observed in the two possible directions on a plane surface, the third direction may be supplied by serial dissections. In these, after the tissue has been hardened it is dissected and a record of each step in the dissection is obtained by pouring on the preparation molten wax, which furnishes a mould into which is poured plaster of Paris. The lateral wall of the thalamus has been examined by these methods, and the author correlates his findings with those of previous anatomists.—A New Conception of the Elements of Sensation, by John S. B. Stopford. Fifty-one patients were examined in whom it was known that a complete division of definite peripheral nerves of the upper extremity existed. The author holds that in the past anatomists have designated nerves as purely cutaneous on insufficient evidence, and therefore it would appear that any division of sensation into cutaneous and deep must be regarded as artificial, and apt to be misleading when applied to clinical work. He finds that the various forms of sensation included under the division of deep sensibility may be dissociated; and that therefore deep sensibility ought to have been subdivided, just as cutaneous sensation has been divided, into epicritic and protopathic. Contrary to the general belief that the earlier return of protopathic sensibility is dependent upon a more rapid rate of regeneration in protopathic than epicritic fibres, the author holds that it is more reasonable to expect to find an explanation of the two stages of recovery in the central nervous system, rather than to find it due to a different rate of regeneration of two sets of fibres which anatomically appear to be identical. The fact that the forms of sensation appearing late are those which Head has proved to have cortical representation is significant.—Toxic Polyneuritis, by Wilfred Harris. A comprehensive review of the less common forms of toxic polyneuritis including leukæmic, relapsing, and hæmatoporphyriuric.—On Muscle Tonus, by J. W. Langelaan. This paper gives the results observed in frogs after: (1) the seventh, eighth, and ninth rami communicantes were divided on the right side; (2) the same posterior roots were cut; (3) the spinal cord had been divided between the second and third spinal roots with subsequent section of the seventh, eighth, and ninth rami communicantes; (4) the spinal cord was only partially cut, and a new scheme of the primary spinal reflex arcs based upon these results is suggested.—The Central Connection of the Vestibular Nuclei with the Corpus Striatum, and their Significance for Ocular Movements and for Locomotion, by L. J. J. Muskens. On experimental evidence the author believes that the tertiary vestibular tracts terminate in the oral part of the globus pallidus and that the secondary vestibular tracts which ascend in the posterior longitudinal bundles cross the middle line by way of the posterior commissure before entering the commissural nuclei.

THE LANCET.

LONDON: SATURDAY, MAY 12, 1923.

THE MENTAL TREATMENT BILL.

SINCE the repeated reference, in an open letter¹ to visiting committees of mental hospitals from the chairman of the Board of Control, Sir FREDERICK WILLIS, to an impending Mental Treatment Bill, its formal introduction has been awaited with interest. Lord ONSLOW moved the second reading of the Bill in the House of Lords on May 3rd in a forcible address which left no doubt as to the main point on which new legislation is required. The chief purpose of the Bill is to provide that a patient suffering from incipient mental disorder may be received in recognised public or private institutions for treatment without the stigma of certification. The present provision for voluntary boarders in private licensed houses does not meet the whole need, for not only is such treatment beyond the reach of the poor, but it cannot be applied to those sufferers from incipient mental disease who may be incapable of volition just at a time when their immediate removal to an institution might very well be the only treatment likely to effect a permanent cure. The safeguards to prevent abuse of the new powers are well planned. The recommendation of two doctors—one at least being a medical man approved by the Board of Control—must be countersigned by a justice of the peace or a minister of religion, personally acquainted with the patient, who is satisfied that the patient is incapable of voluntary action at the time. The limitation of uncertified treatment to a maximum period of one year in all is another wise provision. If one year's treatment does not avail it is probable that certification in any case be inevitable.

There will be three ways of egress for the uncertified patient from an institution to which he may have been sent when incapable of understanding his position: (1) he may leave the institution at any time on giving 48 hours' notice; he may be discharged (2) by the superintendent or (3) by the Board of Control, which will frequently inspect institutions housing uncertified patients. The mechanism of the scheme is elastic. County and borough councils, acting through their visiting committees, will be able to receive patients into their own institutions or may arrange for general hospitals to receive early mental cases. The advantages of this latter provision include, from the patients' point of view, separation of non-certified from certified patients, and access to special facilities for diagnosis and treatment of physical disease; and from the communal aspect, the educational value to medical students and nurses of the study of border-line cases. Out-patient departments, where cases of nervous or of mental disease will not obviously be differentiated, are to be allowed, and many relatives doubtless will take advantage of this method of procuring early medical advice without upsetting the patient. Adequate provision for after-care will now be part of the business of visiting committees, while opportunity will be given for more lavish expenditure of public money on coördinated research. The constitution of the visiting committees will be strengthened by

the power to coöpt expert opinion among their members and also to obtain the services of men or women, not necessarily members of the county or borough council, who may have leisure and a desire to devote it to visiting the insane.

There remains only the question of adequate central control. The existing staff of Commissioners in Lunacy, of which six only as doctors or lawyers are in a position to pay statutory visits, cannot cope with its present work, let alone the inevitable extra burdens of inspection that this Bill must carry with it. It is suggested that instead of still further increasing the number of Commissioners, whose salaries are £1200 to £1500, an increase in the number of medical inspectors, at £500 to £800, would be a more economical and practical method of achieving proper supervision, and in the future it will be permissible for certain visits and local work to be carried out by inspectors. Lord ONSLOW'S Bill should meet with little criticism as to its essential points, and its embodiment in our statutes may well prove a landmark in the development of the therapeutics of mental disease.

A NEW THEORY OF COAL-MINERS' NYSTAGMUS.

WE have received an advance copy of a paper by Dr. FREDERICK ROBSON on miners' nystagmus, the first half of which was read at Cardiff on March 22nd before the South Wales Institute of Engineers, followed by a discussion in which many medical men took part, and the second half read at Swansea on April 27th. In it the author propounds a new theory of the causation of the disease, which, if true, would entirely upset the conclusion arrived at two years ago by the Nystagmus Committee of the Medical Research Council, supported by the opinion of most of the medical men who gave evidence and had practical experience of the subject—viz., that the chief factor in its causation is deficient lighting. Dr. ROBSON'S theory is that the main cause of miners' nystagmus is the emanation of noxious gases from recently cut coal. His argument is that nystagmus may be due to anoxæmia, that carbon monoxide can produce anoxæmia, that carbon monoxide is present as a constituent of occluded gases in highly volatile coals, and therefore nystagmus may be due to carbon monoxide. In support of this theory the paper attempts to establish, with considerable success, a relation between the prevalence of nystagmus and the percentage proportion of volatile matter found in coals. Taking the South Wales coal-field there is a progressive diminution in the volatile matter from east to west, and there is a corresponding decrease in the percentage of men employed below ground who were reported as suffering from nystagmus. The figures are at first sight remarkable, and as they are the main support of Dr. ROBSON'S argument, we think it worth while to give them in full.

Nystagmus in Men Employed below Ground, from 1909-1919.

		Volatile (per cent.).	Nystagmus (per cent.).
1. Monmouthshire	..	29.50	gave 4.57
2. Glamorgan East	..	21.19	" 2.22
3. Glamorgan West	..	15.50	" 1.90
4. Carmarthen	..	11.87	" 1.15

The argument is amplified at considerable length by reference to the special conditions peculiar to each district. The obvious criticism of it is that in the volatile pits the lighting is inferior owing to the

¹ See THE LANCET, 1923, i., 350.

danger of using naked lamps, whereas in the non-volatile pits the lighting is superior. Dr. ROBSON'S answer to this is contained in Part V. of his paper (read at Swansea subsequently to the discussion at Cardiff), in which he brings figures to show that, in spite of the introduction of electric lamps into the mines, which has gradually been effected since 1914, but is still far from complete, the compensation claims for nystagmus have continued to increase, but he admits that the new lamps may not have been in use long enough to indicate the results in figures.

The discussion that took place at Cardiff after the reading of the first part of the paper shows that as yet, at any rate, Dr. ROBSON'S conclusions find little support among those best able to judge. Prof. GEORGE KNOX indeed opined that the evidence that deficient lighting is the chief cause of nystagmus was not so convincing that any body of men could afford to neglect to explore every other possible avenue that might lead to definite conclusions, and Dr. LEIGHTON DAVIES leant decidedly to Dr. ROBSON'S theory. On the other hand, Dr. J. S. HALDANE, who himself discovered 25 years ago that small amounts of CO are formed at ordinary temperatures when air acts upon fresh coal, stated that the quantity is so minute that we can have complete confidence in dismissing this gas as a possible contributory cause of miners' nystagmus. As chairman of the Nystagmus Committee of the Medical Research Council, he thought it would be a misfortune to British coal-mining if, owing to the idea that nystagmus is possibly due to mine gases, effort is relaxed towards obtaining greatly superior illumination for coal-miners. Dr. T. LISTER LLEWELLYN, on whose evidence the report of the committee was very largely based, took a similar view, and so did Dr. J. J. HEALY, who suggested an explanation for the phenomenon of nystagmus based on the theory of VON KRIES that the rods and cones of the retina provide two distinct apparatus for dark and light vision respectively. Perhaps the most telling criticism of Dr. ROBSON'S figures, however, referred to the effect of the Workmen's Compensation Act on the number of nystagmus cases officially reported. As Prof. E. L. COLLIS pointed out, experience teaches that several years always elapse after a disease is scheduled before claims reach a steady annual level. Nystagmus was placed in the schedule to the Workmen's Compensation Act of 1906. The fact that nystagmus frequently arises without causing any subjective symptoms, and therefore that many men whose eyes oscillate in the dark may be unconscious for years that anything is the matter with them, must necessarily have resulted in a steady increase in the number of claims for years after the law was first passed. In 1913, soon after the annual rate had reached a point where it might naturally have remained fairly steady, the designation of the disease in the schedule was altered, and altered in such a way as to admit for compensation for the first time psychopathic manifestations of the trouble. A rise in the number of cases naturally followed. War conditions and variations in the rate of wages have since introduced disturbing factors which make any statistics of the disease based on claims very largely unreliable. Moreover, a disease with psychopathic symptoms is "catching," so that a colliery or district previously free may suddenly be "infected" with compensation claims.

Whether these psychopathic symptoms—tremors, disordered action of the heart, headaches, sleeplessness—are in reality a separate entity which might be called "miners' neurosis," to be found either

separate or combined with oscillations of the eyeball; or whether they are always secondary to the latter, and therefore parts of a syndrome of which the oscillations of the eyeball are only one part, is a matter on which there is room for differences of opinion and which ought to be further investigated. Certainly it is generally acknowledged that besides defective illumination, a factor in the disease is the constrained position of the eyes necessary for coal-hewers, a factor which Dr. A. S. PERCIVAL, of Newcastle-on-Tyne, following the late Dr. SNELL, considers to be of primary importance. The whole controversy is as yet some way from being settled. Meantime, however, we may say definitely that the arguments for the new theory are quite insufficient to afford excuse for any relaxation of the efforts which have for some years been made to provide the miners—in addition to safety lamps where necessary—with proper illumination from electric cap-lamps.

SPLANCHNIC ANÆSTHESIA.

THE administration of general anæsthetics has reached such a degree of perfection in this country that there has been but little inducement to develop local methods for abdominal operations. On the continent, where but few specialist anæsthetists exist, the bad effects of ill-administered ether or chloroform have been so pronounced that the search for a method by which general anæsthetics could be eliminated has gone on unceasingly. The latest advance in this direction has been the evolution of splanchnic anæsthesia. Whilst it has always been possible to open the abdomen under local anæsthesia painlessly, manipulation inside the cavity invariably causes distress. The visceral walls themselves are insensitive, but any interference with the mesentery or parietal peritoneum, even the withdrawal of an organ to the surface of the body, gives rise to considerable pain. The sensory nerves in question, for the whole of the abdomen above the pelvis, are derived from the celiac plexus, which they reach along the splanchnic nerves. This plexus is rather deeply situated in front of the spine and very close to the aorta and vena cava. The suggestion to infiltrate this whole area by puncture from without does not commend itself easily to the anatomist or surgeon. But by the work, amongst others, of KAPPIS, BRAUN, WENDLING, LABAT, and PAUCHET three methods have been worked out. They are puncture from behind below the last rib, puncture from below the costal margin, the needle traversing the left lobe of the liver, and puncture above the lesser curvature of the stomach after opening the abdomen. The second procedure is the most dangerous, least certain, and an unsatisfactory way. Puncture after opening the abdomen is the safest and most easy, but it is not always possible and in itself is painful. It is best reserved as an accessory method, if after puncture from behind it is found, when the abdomen has been opened, that the anæsthesia is not complete. E. KUTSCHA-LISSBERG¹ reports his experience in 178 cases, which included most operations upon the abdomen outside the pelvis. The ages of the patients ranged from 10 to 70 years. In 169 cases the anæsthesia was absolute, but in 12 of these it was combined with lumbar anæsthesia; there were two complete failures; in only three patients was resort to general anæsthesia necessary, and one of them inhaled alcohol only. Preliminary treatment consisted in the

¹ Wien. Klin. Woch., 1923, No. 12, p. 216.

administration of morphine and atropine. Scopolamine appeared to cause abdominal rigidity. In this series there was only one death in which the anæsthetic could be said to play a part. It was a man with a ruptured colon who died during the operation. He was very collapsed from the injury before the administration of the anæsthetic.

What are the dangers and complications of splanchnic anæsthesia? They are these: Reflex collapse when the needle reaches the plexus, only seen when the patient is injected sitting up; toxic symptoms which come on immediately if the needle point should be in the cavity of the vena cava or aorta, or supervene in a few minutes if the patient be unusually susceptible to novocaine; and finally, acute dilatation of the stomach and perhaps atony of the intestine a few days after operation. The collapse from novocaine poisoning can be avoided by care in technique and avoidance of too large a dose. The dilatation of the stomach is a serious complication. It arises apparently from the upset of the celiac plexus caused by the injection. The bad effects of it can be lessened by early recognition and the passage of a stomach tube. Many considerations come to the fore when the advisability of adopting the method has to be decided by English surgeons. The Teuton is a more phlegmatic individual and will submit readily to the number of needle punctures (14 or more) necessary to block both the splanchnics and the nerves of the abdominal wall. This in itself would be an ordeal for many patients in this country. The distress of being operated upon whilst conscious would be very great in some individuals. Yet it must be confessed that the comfort of the patients the day after operation under local anæsthesia is very striking. They escape the vomiting which even the most skilled general anæsthetist is unable always to prevent, and with it the exhaustion caused by the pain of uncontrolled retching, a memory always the last to fade from the mind of a laparotomised patient. Then again, it must be admitted that the toxæmia of novocaine is less than that due to a general anæsthetic. It is claimed that the mortality rate in peritonitis is less when the patients are operated upon under local anæsthesia than under ether. Probably with increasing experience it will be established that, like the spinal method, splanchnic anæsthesia has its indications as well as its limitations, and that it will come to take a recognised place in surgical technique.

THE annual oration of the Medical Society of London will be given at 11, Chandos-street, London, W. 1, next Monday, May 14th, by Dr. J. Walter Carr, who has taken as his subject Life and Problems in a Medical Utopia.

ROYAL SOCIETY OF MEDICINE.—The President, Sir William Hale-White, with the hon. secretaries, Dr. A. M. H. Gray and Mr. Girling Ball, and the secretary, Sir John Y. W. MacAlister, attended at St. James's Palace on May 4th, and formally presented the Honorary Fellowship of the Society to the Prince of Wales.

The house and library of the Royal Society of Medicine will be closed from Saturday, May 19th, to Monday, May 21st, both days inclusive.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—At a meeting held on May 1st, Sir Robert Philip, President, being in the chair, Dr. George Henry Masson was elected to the Fellowship of the College, and Dr. James Davie Gilruth and Dr. William Arnott Dickson were admitted to the Membership of the College. The College re-elected Dr. William Russell as their representative on the General Council of Medical Education and Registration for a further period of five years. The Freeland Barbour Fellowship for Original Research was awarded to Dr. James Walker Dawson. Lord Polwarth presented to the College an autograph letter by Edward Jenner dated Sept. 14th, 1799.

Annotations.

"Ne quid nimis."

CONGENITAL MALFORMATIONS.

CONGENITAL abnormalities have always been a source of interest and speculation to mankind. In olden days they were as often as not referred to diabolical paternity, and frequently the unfortunate mother of such offspring had reason to regret her assumed familiarity with the infernal powers. Since Geoffroy St. Hilaire and v. Vrolik classified monsters on more scientific lines embryology has been invoked in explanation of them all. Yet it sometimes happens that they themselves are really the only foundation for the embryological statements made to account for them. As a matter of fact, normal embryology is an introduction to normal anatomy, and not by any means necessarily an explanation of abnormalities.

Mr. C. P. G. Wakeley gives an interesting description, in the *Journal of Anatomy* for April, of a case on which he had operated, in which were several congenital malformations of the intestinal canal; he refrains from offering any general explanation of their concurrence save what might be conceded to some failure in nutrition. In this restraint Mr. Wakeley shows a philosophic wisdom such as is not always to be found. Whether nutritional faults are to be classed among the causes or not, it is certain that no other is to be decidedly given in the present state of our knowledge. It is permissible to doubt whether abnormalities such as those he describes can be considered even as persistences of normal stages, whether, in fact, there has been any arrest at a definite developmental point, or whether the resemblance to such a stage is not merely general and superficial, the end-result of a growth that has been faulty from the beginning. In this last case there could hardly have been a "normal" stage. It is well to understand that our present knowledge of organogeny, detailed as it is, would never account for the great majority of abnormalities. Even though such a simple thing, for example, as a cleft palate may be certainly referred to failure in the growth-forces of the maxillary process, this is no explanation of it, but is merely a re-statement of the condition in other words. Such a form of re-statement is frequently given ingenuously as an explanation, but in most of the complicated forms of abnormalities even this is not possible in terms of normal embryology. The truth is that we are practically ignorant of the forces and inter-relations behind the phenomena of growth, and are only acquainted with their end-products. The accumulated forces of phylogenetic development are hidden among these, only recognisable here and there, but undoubtedly pervading the activities throughout.

This thought rises in the mind in association with the condition of anal canal in the penis, which is mentioned by Mr. Wakeley in his discussion of the cloacal malformation in his case, and is, no doubt, as he remarks, to be referred to the ectodermal cloaca. The theory that the rectum, or its lower part, is produced by a secondary downgrowth from the cloaca is not in keeping with the facts of ontogenetic development. But one would hesitate to say that it might not be a phylogenetic memory, which may find its expression under unusual circumstances. It may be that future work will show something of this sort to be at the bottom of certain monstrosities, or it may open up vistas in most unexpected directions. Not until some idea is gained of the forces at work—not of their nature but of their methods—can we really hope for much help from embryology, and in most cases we can get none at all. Yet those who, like Mr. Wakeley, carefully report and consider such cases, are doing good spadework, preparing the soil in which, let us hope, some future explanatory system will surely grow.

ECLAMPSIA AND ITS TREATMENT.

THE importance of eclampsia is strikingly shown by the figures furnished by Prof. Stroganoff,¹ who calculates that no less than 5600 mothers and 8400 children die every year in Europe from this complication of childbirth. In England the maternal mortality is as much as 25 per cent. even at the present time. It is now some 25 years since Stroganoff first published his method of treatment founded on his contention that the fits play the most important part in the high death-rate and that everything must be done if the patient is to be saved to prevent the recurrence of the convulsions. That the prophylactic method, as practised by him, is most successful is shown by his results, published so long ago as 1908, of 360 cases of eclampsia with a maternal mortality of 6.6 per cent. and a foetal mortality, not including the third stage of labour, of 21.6 per cent. If the conditions are favourable Prof. Stroganoff believes that the maternal mortality should not exceed 1 to 2 per cent. He favours the theory of the placental origin of the disease and regards eclampsia as mainly the result of two factors—the quality and quantity of the toxins circulating in the mother's blood and the increased degree of irritability of her nervous system. The increased frequency of the fits during labour he would attribute to the increase in the virulence of the toxins produced by the labour pains. Assuming that eclampsia is the result of these two factors, then the treatment should be directed towards lessening the quantity of the toxins in the blood and diminishing the irritability of the nervous system. Forced delivery, as experience has shown, does not answer the purpose. As he believes the occurrence of the fits to lead to a great increase in the amount of toxins in the blood, then it is essential to try and stop them. The fundamental principle underlying this prophylactic method, then, is to prevent the reappearance of the fits, and Prof. Stroganoff endeavours to accomplish this by the combined administration of morphia, chloral hydrate, and chloroform. The effect of these drugs is to calm the patient, produce sleep, to lessen the spasm of the blood-vessels, and to lower the blood pressure. To diminish the concentration of the toxins in the blood, venesection and the introduction of fluid into the body are also practised. In carrying out the treatment, the first principle is to remove all sources of irritation. The second principle, the administration of narcotics, is disputed by many authorities, but there is a large amount of evidence accumulating from day to day in its favour. According to the author the unfavourable effects which have been found to follow the administration of morphia are largely due to overdosage. He never administers more than 2/3 gr. in the 24 hours. The best drug is chloral hydrate up to doses of 100–140 grains in the day. The combination of small doses of chloroform with the chloral hydrate appears to be beneficial, and given in this way does not seem to give rise to the harmful effects which follow the prolonged administration of chloroform. Minor operative procedures to hasten delivery may be undertaken, but with increasing experience they have become less and less necessary because the prophylactic method by itself gives such good results that labour may be allowed to occur spontaneously. Venesection to a moderate degree seems to be undoubtedly beneficial.

The results obtained by Prof. Stroganoff are immeasurably superior to those which follow most other methods of treatment; the only series of results which bear comparison with his are those in use at the Rotunda Hospital, ably set out by Dr. Gibbon FitzGibbon in a recent article in our columns.² The publication of these papers at the present time serves as a timely reminder that forced delivery, whether practised by the abdomen or by the vagina, gives extremely bad results, and we hope that a careful study of these figures will go far to convince the advocates of the treatment of eclampsia by

Cæsarean section that this procedure has nothing to recommend it and should not be performed. Eclampsia is not a common disease and undoubtedly as a result of greater antenatal care of the mother will become rarer and rarer, but it is to be hoped that this method will receive a careful and exhaustive trial in this country and that those who employ it will make themselves conversant with the precise details as laid down by Prof. Stroganoff. The treatment of these cases has in the past often been so complicated and included so many different factors that any comparison between different methods has been almost impossible. We hope, therefore, that the warning conveyed in the report of the Committee appointed by the Section of Obstetrics of the Royal Society of Medicine to consider the question, "that the majority of the fatal cases were overtreated and that in a considerable number of cases excessive treatment must have been a contributory factor in bringing about the fatal result," will be taken to heart.

RENAL TUBERCULOSIS.

At a meeting of the Academy of Medicine on Feb. 9th, Prof. L. Ferria gave some interesting details based on his experience of 126 cases of renal tuberculosis under his care at the urological section of the Hospital of S. Giovanni at Turin.¹ These reached the high proportion of 47 per cent. of all cases of renal suppuration (269), the disease being unilateral in 106, of which 89 were submitted to operation. He called attention to the rarity of partial occlusion of the kidney and the less rare condition of total occlusion to which he attributed the majority, if not all, of the few cases of clinical cure of renal tuberculosis. The bladder was implicated early in 80 per cent. of the cases, and in the great majority of them the course of the disease was a descending one. In contrast to the vesical symptoms, those attributable to the kidney were little if at all in evidence; pseudo-colic was rare, and painful sensations might be felt on the healthy side due to reno-renal reflex. Palpation positive in many cases might be negative and deceptive, as when ptosis of the liver gave an apparent increase in volume to the right kidney. On the other hand, a thickened and indurated ureter felt per rectum or per vaginam had a definite diagnostic value. The possibility of surgical cure rested on the knowledge that the affection was unilateral, and on the integrity or at least the functional efficiency of the kidney left in situ. The best means of ascertaining these fundamental conditions were furnished by cystoscopy and ureteral catheterisation. But when the latter was not possible, Ambard's coefficient, when properly interpreted, afforded useful help; in 11 cases in which it was below 0.100 the author proceeded with complete success to nephrectomy without resort to ureteral catheterisation, because either palpation or the indigo-carmin test, or double exploratory lumbotomy (if a convenient hybrid word may be pardoned) gave him assurance that one of the kidneys was so profoundly disorganised that the coefficient was favourable to a state of functional efficiency in the other. Out of 89 nephrectomies the author had six deaths due to the operation and six in the first six months after. The subsequent history of these cases revealed the fact that death from tuberculosis of the remaining kidney was very rare, occurring in only two instances; more frequent was death from chronic pulmonary tuberculosis, cachexia, and meningitis, which occurred in seven cases. These were operated on in a condition of advanced vesical tuberculosis, and this confirms the necessity of not waiting too long before adopting surgical measures. The practising physician, whenever he encounters patients who have suffered for some time from cystitis of an irregular and variable course rebellious to ordinary treatment, especially if a history of previous gonorrhœa is wanting, and if calculus and

¹ My Improved Method of the Prophylactic Treatment of Eclampsia, Brit. Jour. Obstet. and Gynec., vol. xxx., No. 1, 1923

² THE LANCET, March 31st, 1923.

¹ La Riforma Medica, March 19th, 1923.

prostatic hypertrophy can be excluded, should think of tuberculosis. Once a diagnosis of urinary tuberculosis is made it may be definitely affirmed that there is renal tuberculosis except in cases of prostatic tubercle in men, a condition easily recognisable, and in the very rare cases of tubercle of the uterine appendages in women spreading to the bladder. As soon as the diagnosis of renal tuberculosis is established nephrectomy is clearly indicated if the state of the other kidney allows; only when nephrectomy is performed early is it a fairly safe operation.

THE CEREBRO-SPINAL FLUID IN MENINGITIS.

EVER since lumbar puncture came into general use, persistent efforts have been made to determine the existence, and the degree of virulence, of meningitis of aural origin by means of chemical and microscopical examination of the cerebro-spinal fluid. If this could be done with exactitude it would be of inestimable value both for prognosis and as an indication for operation. That exactitude has not yet been attained is shown by the numerous criteria which have been adopted, and by the different value placed on each by different observers. Increased pressure, turbidity, increase of globulin, diminution of sugar-reducing power, the number of cells, whether polynuclear or mononuclear and whether showing signs of degeneration, and finally the presence or absence of bacteria, and their varieties, have all been used as criteria in estimating the presence and virulence of meningitis. Dr. Holger Mygind, of Copenhagen,¹ considers the cell count of the greatest importance; he believes that meningitis is probable if three or more cells are present per cubic millimetre, although the fluid does not become opalescent until more than 200 cells per cubic millimetre are present. But as a guide to prognosis, no one point, nor even the sum of all, is infallible; many cases with turbid cerebro-spinal fluid recover, and a considerable number have recovered after micro-organisms have been found in the fluid, as in the case recently reported in THE LANCET by Mr. H. L. Martyn.² In an article on the Clinic and the Laboratory in the Classification, Prognosis, and Treatment of Otitic Meningitis, Dr. Henri Aboulker, of Algiers,³ emphasises the fallacy of trusting too greatly to laboratory methods of diagnosis, and considers the clinical examination to be of greater importance. He finds no definite relationship, in a large series of observations, between the various criteria; for instance, bacteria with intact lymphocytes, and damaged lymphocytes in an aseptic fluid. Nor is there a constant relation between the character of the fluid and the outcome of the case, a benign purulent type being fairly well recognised and, as already mentioned, a small number of cases with bacteria recovering; Aboulker reports three such cases and Mygind four. Dr. S. G. Askey reports another in our present issue. Aboulker is in agreement with the remarks we made in a recent annotation⁴ anent the term "meningism," when he says "il n'y a pas de fausses méningites, il n'y a que des erreurs de diagnostic." Mr. Edward D. Davis, who, as we understand from the recent correspondence in our pages, follows Mygind in placing considerable reliance on the cell count as an indication for operation, has just communicated to the Royal Society of Medicine (see p. 955) his views on the morbid anatomy and drainage of otitic meningitis. He has made a series of experiments with the injection of methylene-blue to demonstrate the paths of infection from the internal ear and from the region of the lateral sinus; and he comes to the conclusion, among others, that lumbar puncture is inefficient as a method of drainage, but that repeated lumbar puncture does not tend to increase the area of suppuration. The cerebro-spinal fluid obtained by lumbar puncture does not necessarily give an accurate picture of the state of the meninges,

because the thick gelatinous pus, which forms in the subarachnoid space, may shut off the extension of the inflammatory products and prevent them from reaching the spinal canal; thus the outlying regions of the cerebro-spinal system may show only the signs of a serous meningitis, while a localised suppurative condition is present in the cranial cavity.

In fine, the signs elicited by lumbar puncture are not infallible, but are nevertheless of great value for diagnosis and prognosis; laboratory tests must here, as elsewhere, be correlated with the signs disclosed by clinical examination. When so used they form a fairly reliable guide to the state of the meninges and to the advisability or inadvisability of operation. It is on early diagnosis and, where necessary, prompt operation that the possibility of reducing the mortality depends.

NEW DISINFECTION LAWS IN GERMANY.

UNDER a decree recently issued by the Prussian Minister of Health an entirely new system of disinfection in infectious diseases is formulated. The essence of the decree is, first, to organise disinfection at the bedside of the patient during the whole course of his illness in such a way as to make a final disinfection of secondary importance, or, indeed, altogether superfluous; and, secondly, to dispense with formalin vapour and dry heat in the disinfection of rooms and articles by substituting the free use of a disinfectant fluid throughout the course of the illness. This ministerial decree has reference only to the contagious diseases specified in the Act of August 28th, 1905, including tuberculosis, diphtheria, acute meningitis, scarlet fever, typhoid fever, dysentery, and trachoma, while the Act of 1900 relating to plague, cholera, typhus, and small-pox, remains in force with all its provisions. The principle underlying the new regulations is that in the vast majority of cases infection occurs from individual to individual either by direct contact or by the transmission of germs over a short distance. Thus it is only the patient or the carrier who needs to be supervised, the part played by fomites in the transmission of infection being negligible, except where contamination is recent and massive, any bacteria deposited quickly losing their virulence and their vitality. Infection occurs almost entirely in one or more of three ways: by the projection of droplets of saliva—or more accurately of droplets of nasal, pharyngeal, tracheal, or bronchial secretion—as in tuberculosis, diphtheria, cerebro-spinal fever and scarlet fever; by faecal material or urine, as in typhoid fever and dysentery; and by the hands, as in these and other diseases, such as trachoma. Any method of disinfection must therefore take account of these three possible sources of contamination.

The regulations in the case of diphtheria, which we may take as an example, include, on the one hand, a detailed list of articles to be disinfected: utensils, body linen, sputum, floor; and, on the other hand, instructions to the patient to turn away his head and to cover his mouth when coughing, and to the attendants to avoid all unnecessary contact, to place themselves behind him when handing him anything and to stand at a distance of two arm-lengths from him when he coughs. The disinfectant to be used is a 1 in 1000 solution of corrosive sublimate—a choice apparently made upon grounds of economy—failing which cresol may be used. At the end of the illness, providing that the instructions have been faithfully carried out, nothing remains to be done, although in exceptional circumstances, such as in overcrowded tenements or in lodging-houses, the medical officer of health may prescribe formalin or steam disinfection as an additional precautionary measure. The municipal authority is charged with the duty of distributing the disinfectants to the public, a charge being made, except in the case of necessitous persons. The heaviest responsibility in connexion with the scheme falls upon the municipal nurses and the official disinfectors who have to attend a preliminary course of instruction lasting, in the case of the nurses, at least eight days, exclusive of Sundays, and in the

¹ Journal of Laryngology, December, 1922, p. 597.

² THE LANCET, March 10th, 1923, p. 485.

³ La Presse Médicale, April 14th, 1923, p. 342.

⁴ THE LANCET, April 28th, 1923, p. 862.

case of the "disinfectors" a clear fortnight. As soon as the police have been notified of a case of infectious disease a nurse visits the family, repeating the visit every two or three days until the end of the illness in order both to instruct the members of the household in the prescribed ritual, and also to see that the directions are properly carried out. The rôle of both nurses and disinfectors—the latter intervening as a rule only where no nurse is available—being strictly confined to prophylactic measures, no interference of any kind with the treatment of the patient is allowed on the part of these officials under penalty of forfeiture of their diploma or licence, and even their presence in the sick room is contingent upon the permission of the doctor in attendance and the invitation of the relatives of the patient.

The scheme has been criticised in Germany both on hygienic and on economic grounds. Not only does some doubt appear to be felt as to how far it will be found practicable adequately to supervise and control this bedside disinfection, but it is recognised that an extremely large personnel will be required. Moreover, as the disinfecting stations will still have to be kept up for the diseases specified under the Act of 1900, a double expenditure will inevitably be entailed. On the other hand, it is certain that the scheme will result in a new and widespread campaign in the instruction of the public as to the aetiology and prophylaxis of the commoner infectious diseases, and such an educational propaganda can hardly fail in the long run to react favourably upon the public health of the country.

ELECTRO-COAGULATION IN LUPUS.

THE Finsen Institute in Copenhagen is to be congratulated on the pioneer spirit in which its staff keeps alive the best Finsen traditions of scientific research. Thanks largely to the observations of A. Reyn, chief of the Institute, lupus has come to be regarded as being, in many cases, connected with a deep-seated focus of tuberculosis. Hence the growing tendency at the Finsen Institute to give general as well as local treatment in lupus. Local treatment is, however, of great importance, and a recent paper by Dr. A. Vibede,¹ of the Oto-Laryngological Department, gives a very hopeful review of the experience of the past two years in the treatment of lupus by electro-coagulation, the apparatus used being a powerful diathermic plant supplied by Löwenstein, of Berlin. After giving an account of the technique, Dr. Vibede analyses the results obtained in 283 cases in the period November, 1919, to August, 1921. Several of these 283 patients had other tuberculous lesions, and as many as 221 had undergone some other local treatment, but without great success. It will thus be seen that the disease in many cases was of an obstinate character. As many as 90 discontinued treatment or could not subsequently be traced. Of the remaining 193, no less than 160 were apparently cured, and 27 were improved. Considering that the duration of treatment was less than a month in 128 cases, the results must be considered as remarkably good, and they compare well with the results obtained by Reyn's electrolysis—the only method which, in Dr. Vibede's opinion, can be expected to compete with electro-coagulation. The results of electrolysis have been shown by Strandberg, of the Finsen Institute, to be comparatively poor; of 200 patients thus treated, only 96 were apparently cured. Thus electrolysis cures approximately only 50 per cent., while electro-coagulation cures 82 per cent., and in much shorter time. It also does not entail the giving of the large doses of iodine required for electrolysis. Further advantages of this method are its not drawing blood, the ease with which it can be carried out by a skilled specialist, and the smallness of the risk of spreading infection. On the other hand, it has certain very definite disadvantages. The cost of the apparatus is considerable, not a little dexterity and practice are required of the operator, and, last but

not least, the pain of the treatment cannot be overcome by local anaesthesia. Even when the treatment is carried out skilfully it is very painful, and the pain of electrical and thermal stimulation may radiate far beyond the field of operation. Yet most of the patients at the Finsen Institute were able to endure the treatment without a general anaesthetic when the application was of short duration, but it was sometimes necessary to induce shallow ether or ethyl chloride anaesthesia.

THE CLASSIFICATION OF STREPTOCOCCI.

AN adequate classification of the streptococci has not yet been achieved, and those pathologists who have had the experience of examining sputa and throat swabs from cases of naso-pharyngeal catarrh—especially in connexion with recent epidemics of influenza—know only too well what a perplexing pursuit this examination can be. As clinical pathology extends its bounds this large and heterogeneous class of organisms continues to grow and confusion seems to increase rather than diminish. It was thought at one time that the fermentation of sugars would solve the difficulties, but disappointment has followed. Sugars supplied are not always pure, and the autoclaving process of sterilisation leads to chemical changes which have doubtless, in the past, been responsible for discrepant results. A new fermentation tube by means of which carbohydrates may be separated from proteins during sterilisation has recently been devised by Dukes,¹ which may now obviate this difficulty. Again, the old difficulty of obtaining pure cultures—which is of paramount importance in classification work—is a very real one in the case of an organism such as the streptococcus, witness the confusion which reigns in the description of the morphological characteristics of the organism in the various standard text-books of bacteriology. The truth is that the growth of bacterial subcultures on pure lines is by no means an easy task.

There are indications, however, that advances in classification are being made. The use of the bile-solubility test for separating off the pneumococcus group, for instance, has been a considerable advance, and it would be a step forward if clinical pathologists in reporting on the organisms of the pneumococcal and streptococcal groups, would make it a rule to state whether or not the strain reported on was bile-soluble. At the present moment it almost seems as though we might regard bile solubility as the crucial test of the true pathogenic pneumococcus, but whether we should be justified in going a stage further and regarding organisms morphologically and culturally resembling pneumococci, but not bile-soluble, as streptococci is another question. Probably, also, the separation of the heterogeneous Group IV. Pneumococci, when it is achieved, will produce some surprises. For the true streptococci the hæmolysis of blood-agar media seems to offer the best means of classification. Brown² separates these organisms into alpha and beta types according to the degree of hæmolysis, and ascribes the title gamma type to non-hæmolytic varieties. Valentine and Mishulow³ have investigated a number of strains by this method, and confirm Brown's results. More recently still Miss Mary L. Cowan⁴ has separated these hæmolytic strains into "rough" and "smooth" types, and has shown "an almost complete lack of virulence on the part of the 'rough' elements," which may throw light on the discrepancies noted by different workers, with the hæmolytic streptococci.

On the clinical side these hæmolytic streptococci are equally variable; some are found in fulminating broncho-pneumonias and empyemas, others in the crypts of chronically hypertrophied tonsils, and it seems difficult to believe that these strains are all one and the same species of organism. Virulence tests in the

¹ Dukes, Cuthbert: Proc. Roy. Soc. Med., Section of Path. 1923, xvi, p. 13.

² Brown, J. H.: Monograph 9, Rockefeller Institute, 1919.

³ Valentine, E., and Mishulow, L.: Journ. of Immunol., 1922, vi., 301.

⁴ Brit. Journ. of Exp. Path., 1922, iii., 187.

¹ Acta Oto-Laryngologica, 1923, v., Fasc. I.

mouse, and immunity tests such as agglutination, precipitation, and complement fixation may help to differentiate further these apparently anomalous characteristics. Until some adequate classification is forthcoming, it is obvious that prognosis in regard to streptococcal infections must be guarded, and our opinions on the use of anti-streptococcal serum and streptococcus vaccine in treatment must be characterised by extreme caution.

OLEO-BISMUTH IN SYPHILIS.

THE recent introduction of bismuth as a specific remedy for syphilis has been followed by an extensive trial of numerous preparations. The original French preparation, trépol, has been supplanted by a new trépol, the intramuscular injection of which is said to be comparatively painless. At present there is a tendency in favour of the insoluble preparations of bismuth in preference to the soluble preparations, and it is held in certain quarters that the specific action of these preparations depends mainly, or wholly, on their content of metallic bismuth. The molecular arrangement of the various bismuth preparations seems to be a matter of comparatively slight importance, and in this respect, at any rate, the bismuth preparations differ from the salvarsan group. In the *Schweizerische medizinische Wochenschrift* for March 22nd there is a paper by Dr. E. Ramel of the Dermatological Clinic in Zurich. The preparation which he recommends is oleinate of bismuth (l'oleo-bismuth "Roche"), the formula of which is $(C_{17}H_{33}COO)_3Bi$. The bismuth is very finely suspended and the stability of the suspension is so great that even after standing for months the solution shows no deposit. The treatment consists of bi-weekly intramuscular injections of 2 c.cm., 20 or 30 injections being given in one series during which the total amount of bismuth administered is 2-3 g. The therapeutic results achieved in Zurich have been quite equal to those obtained with the painless preparation of trépol, and only in one or two cases were the injections followed by the appearance of a slight bismuth line in the gums. This line soon vanished after the drug had been discontinued, and in no case did the injections give rise to albuminuria. Bismuth, it would seem, has a more rapid effect on the cutaneous manifestations of syphilis than on the Wassermann reaction, which may persist long after the secondary eruptions have vanished. But, as Dr. Ramel suggests, the ultimate effect of bismuth on the Wassermann reaction may prove lasting, in spite of the delay in converting a positive to a negative reaction. Salvarsan and bismuth, being markedly different in their serological actions, may prove mutually supplementary, and Dr. Ramel, like other advocates of bismuth, does not regard it as a substitute for, but rather as an adjuvant to, the salvarsan group.

ALCOHOL AND PNEUMONIA.

To determine the influence of the consumption of alcohol upon the prognosis of the disease, Dr. Joseph A. Capps and Dr. George H. Coleman¹ recently made a study of 3422 cases of lobar pneumonia which were admitted to the Cook County Hospital, Chicago, during the course of eight years, which include the period 1911-17 before prohibition, and the two years after prohibition, 1921-22. The intermediate years were omitted on account of the streptococcus and influenza epidemics, which produced atypical forms of pneumonia. It was found that the mortality was considerably higher in moderate drinkers—i.e., those who drank regularly two or more glasses of beer or one or two glasses of spirits daily—than in abstainers or in those who drank less than two glasses of beer a day, or who drank spirits occasionally, while in excessive drinkers the mortality was highest of all. The average age of the moderate drinkers in the series was about five years higher than

that of the abstainers or light drinkers, and the average age of the excessive drinkers was about three years higher than that of the moderate—a curious fact which the authors regard as "likely" but do not stop to explain. But the mortality was reckoned separately in each group by decades in order to exclude the age factor entirely from the problem, with the result that the death-rate among moderate drinkers showed a remarkable increase over the abstainers, and the death-rate among excessive a still greater increase over the moderate. Although the writers do not claim that prohibition is lessening the death-rate from pneumonia, they have observed within recent years an increased proportion of abstainers or light drinkers and a corresponding decrease in heavy drinkers. The practical disappearance of delirium tremens within recent years, as compared with its frequency before prohibition, is also evidence of the lowered rate of alcohol consumption. The present paper recalls an article which was published two years previously by Dr. J. L. Miller,² whose observations were also made at the Cook County Hospital, on the effect of prohibition on the incidence of fatal cirrhosis. Dr. Miller, who carefully investigated the history of every case of cirrhosis admitted to his wards, never failed to obtain a history of marked alcoholism. In 1920, the year following the introduction of prohibition, there were only 19 cases of fatal cirrhosis admitted, all but one of which gave a history of chronic alcoholism, as compared with 48 cases of cirrhosis admitted in 1919, 87 in 1918, and from 137 to 160 in each of the years 1910 to 1917. Dr. Miller concluded that fatal cirrhosis, in the United States at least, was associated largely, and possibly entirely, with the use of alcohol.

HERPES ZOSTER GENERALISATUS.

In a review of the literature, with the report of a personal case, Dr. Mihran B. Parounagian and Dr. Herman Goodman,³ of New York, remark that the first case of generalised herpes zoster was reported by Haslund, in 1897, in a man, aged 59, who presented a left dorso-abdominal zona, with additional vesicles on the trunk and extremities, left border of the tongue, and mucous membrane of the gums. The temperature was 102° F. The disease lasted about three weeks and ended in complete recovery. The writers have collected about 25 other cases, most of which occurred in elderly persons who were not very robust. Although age alone is no objection to the existence of varicella, the generalised eruptions associated with herpes zoster in advanced adult life have always been described as different from varicella as ordinarily seen. Until, however, the bacteriological aetiology of herpes zoster is established, the question of the identity or non-identity of herpes with varicella cannot be satisfactorily answered. In most cases, including that reported by the writers, the aberrant vesicles were scanty in comparison with the primary segmental eruption. In two cases, however, reported by Colombini and De Amicis respectively, the secondary eruption was remarkably extensive, occupying the cervical, cervico-brachial, dorso-pectoral, dorso-abdominal, lumbo-inguinal, sacro-sciatic, and lumbo-femoral regions on both sides. The present writers' case was that of a man who gave his age as 64, though he appeared to be many years older. In addition to a well-marked eruption of right abdominal herpes zoster of about a week's duration he presented numerous scattered vesicles and small, ill-defined papules on the trunk, especially anteriorly, on both flanks, axillæ, thighs, shoulders, and arms. The lower part of the legs and forearms contained hardly any lesions, and the face and buccal mucosa were free. A diagnosis of abdominal herpes zoster, accompanied by varicella, was first made, but that of generalised herpes zoster was substituted afterwards.

¹ Journal of the American Medical Association, March 17th, 1923.

² Ibid., 1921, lxxvi., 1646.

³ Archives of Dermatology and Syphilology, April, 1923.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XIX.

HEART FAILURE: THERAPEUTICS.*

It is remarkable what a large proportion of patients with heart disease fail in the same way. For example, one who has been breathless on exertion for many years with mitral stenosis acquires a rapid irregular pulse which is due to the onset of auricular fibrillation. He then becomes more breathless, the liver swells from venous congestion, and the legs become oedematous. We will take this common example of heart failure and consider the general management, the diet, the use of digitalis and other remedies, and the treatment of certain special conditions.

General Management.

In health the rate of the heart is lowest in recumbency, therefore in failure this position must be regarded as beneficial. Where both the abdomen and the thighs are greatly swollen, however, the pressure on the diaphragm may only be relieved by sitting out of bed. If, therefore, bed has become intolerable, but not unless, one should accept the fact with good grace and make suitable dispositions. A sufficiency of blankets should encircle the lower half of the body. A "heart chair" may be improvised by placing the edge of a firm heavy table in front of an easy chair with not too sloping a back or well filled with pillows behind. Patients like to lean forward upon such a support and may be able to sleep with the head resting on the arms folded on the table. The room must be warm though well ventilated, and some patients derive great satisfaction from a draught of air if it is not too cold.

Diet.

A diet of milk alone, not more than $1\frac{1}{2}$ –2 pints in the 24 hours, is best suited to the stage of severe failure. It may be given hot or cold, flavoured with tea or coffee, at four-hourly intervals. On no account should more be pressed upon the patient; for food will not save him, whereas a quiet stomach free from flatulence and tolerant of medicine will help to do so. This restricted milk diet also provides the advantages of a small fluid intake and a minimum of salt. In a few days or a week solids may be given in addition, and cups of tea and coffee allowed, but still the total daily liquid should remain below two pints. If the patient has never been able to take milk or it proves unsuitable, a dry diet may be composed of toast with a little butter, eggs, custard and baked apple, minced or potted meat sandwiches, fish, and chicken. These should be arranged in definite small meals amply spaced. A small cup of tea or coffee is permissible, or half a tumbler of water, but again the daily liquid should be limited.

Medicinal and Other Treatment.

Suitable aperients are calomel gr. i.–ii. overnight, followed early next morning one hour before any food or drink is taken by sulphate of soda, drachms i.–iv., in hot strong solution as required. Drastic purges and diaphoretics of any kind are not indicated in cardiac dropsy.

1. *If failure is extreme and life seems in danger*, we rely upon three measures—venesection, oxygen, digitalis.

The indications for *venesection* are orthopnoea with cyanosis and distended veins. If these are present it matters little what the lesion is. If very urgent, blood may be let from the external jugular vein without hesitation. As in the arm nothing is required but to insert the point of a bistoury or abscess knife, and to

cut outwards through the vein; it is unnecessary to make a big operation of it. There is sometimes difficulty in removing enough blood; for not less than 20–30 oz. should be taken, as the object is to reduce the mass of blood in circulation and thereby to relieve the exhausted pump. The immediate relief is pronounced and will justify the procedure to the patient and his friends, though it cannot be expected that the relief from this means alone will continue.

Oxygen is properly used whenever there is much cyanosis with dyspnoea. It cannot be given in too great a concentration, so the tube should be as close to the mouth as possible. A far better method is to connect the tube with a soft rubber catheter. When the right gentle flow is obtained it is oiled and pushed straight back through the nostril for about three inches and left there. It is fixed by a slip of strapping to the cheek, and the connecting tube is loosely moored to the pillow beyond the shoulder by a large safety-pin. Oxygen can thus be given continuously or for definite periods according to need.

Digitalis, as commonly given, has only one disadvantage—it takes about two days to come into action. If it seems too dangerous to wait for so long, a digitalis effect may be obtained within an hour by an intravenous injection of *strophanthin*, gr. 1/200 (obtainable in ampoules). This is neither the maximum nor a dangerous dose, and it may be repeated in 12 hours if required. But this injection is not to be used at all if digitalis has already been given, otherwise the total amount of digitalis bodies in the system may be reinforced to a dangerous level. Therefore, if digitalis has already been given, or if oral administration is preferred, a dose of 15–20 minims of the tincture four-hourly is the least dose likely to act in time to affect the outcome. It is for just such urgent cases of failure, as an alternative to intravenous strophanthin, that the massive doses of digitalis suggested by Eggleston are likely to come into use. In the modified course, $1\frac{1}{2}$ drachms of the tincture forms the first dose; 1 drachm six hours later the second; and $\frac{1}{2}$ drachm six hours later still the third and last, completing the total required by the heart for the time.¹

When much fluid is present in the chest—and a right hydrothorax is not uncommon—removal of the fluid may quickly reduce an urgent dyspnoea. The same is true to a lesser extent of extreme ascites. Now and then, patients are seen with apparently hopeless failure and gross oedema involving the whole body including the thorax and even the arms. Venesection may be difficult and there may be no time for medicinal measures. In such a case the best treatment is to give oxygen and to incise the legs as described later.

2. *In Failure of Average Degree.*—When life does not seem in danger but the symptoms and signs of failure are severe, a course of rest and digitalis may be all that is required for recovery. As soon as the patient is seen tincture of digitalis should be ordered in a dose of 1 drachm daily, not less; for example tinct. digitalis, B.P., ℥ x., aq. chloroformi ad oz. $\frac{1}{2}$, four-hourly. There is no advantage in combining any other drugs with it, least of all iodide or nitrite, for digitalis does not in therapeutic doses raise the blood pressure, and the simple solution of digitalis scarcely irritates the stomach at all. Within two or three days its beneficial effect should begin to be seen. The patient will be less breathless, the urine will increase in amount, and the pulse-rate will be reduced. But the dose should not be reduced until improvement is more pronounced. If nausea is provoked and the pulse-rate has fallen to 60–80 a minute, the dose should be reduced to 10 minims three times a day. Sometimes it is not possible to obtain the full effect on the heart before a vomit occurs; in such a case the drug should be stopped to be continued afterwards in the half dose (30 minims daily). There is no danger in giving digitalis in adequate doses if heed is taken of the toxic signs—(a) nausea and

* An article in this series, entitled Heart Failure: Preventive Treatment, appeared in last week's issue of THE LANCET.

¹ THE LANCET, 1922, II., 703.

vomiting, (b) a pulse-rate below 60, and (c) digitalis coupling (bigeminy due to an extrasystole after each normal beat). When any one of these is found digitalis should be stopped.

Special Conditions.

1. *Insomnia*.—The measures used in urgent cases, as outlined above, are the surest ways of procuring sleep. In some patients a single dose of whisky, 1-2 oz., will act as a soporific. If something more is needed paraldehyde may be given in a dose of 1-2 drachms, preferably as capsules each containing 30 minims. If there is pain or excessive discomfort, an injection of morphine gr. $\frac{1}{4}$ is indicated.

2. *Vomiting*.—Heart failure itself may be the cause of vomiting, especially if the bowels are confined and the diet has not been modified. It may even be necessary to repeat the dose of digitalis which has been vomited or to substitute a digitalis pill. If there is vomiting within a day or two of taking digitalis, and other signs of digitalism are absent, it is most unlikely to be due to the drug. I am suggesting that patients often object to digitalis on a trifling pretext, such as a single attack of vomiting, or alleged headache, or diarrhoea, when these are not due to digitalis and when digitalis is urgently required by the patient's condition.

3. *Obstinate Dropsy*.—If digitalis alone does not remove the dropsy, the combination with mercury, as in Guy's pill (e.g., fol. digit., hyd. c. creta, pulv. scillae, aa gr. i), t.d.s., may produce diuresis. If not, the most valuable diuretic is theobromine sodium salicylate, B.P. It is given in doses of 10-20 gr. t.d.s., either in tablets or in a mixture well flavoured with syrup of ginger. It may be used at the same time as a moderate daily dose of digitalis, or instead of digitalis for a few days only. If drugs along with rest do not dissipate all the oedema a salt-free diet may assist. This is composed of salt-free bread, biscuits or scones, with eggs, custard, milk, and fresh butter. No salt is to be added at table or in the kitchen.

When all these measures have failed, there remains the mechanical removal of the dropsical fluid by tapping the abdomen and by puncture of the legs. For the latter, the patient should sit in a chair for 12-24 hours so that the water can gravitate to the pendent limbs. The feet are then placed in a large tin, and after careful washing they are painted with a weak solution of iodine. With a fine tenotomy knife or a large flat surgical needle, tiny incisions, 10-20 in number, are made along the front of the leg and dorsum of the foot, allowing sufficient area of untouched skin between them. As with venesection, these patients are in such a plight that they rarely object to the procedure. The blankets should be wrapped widely round the basin so that nothing touches the skin, and the fluid is allowed to stream down. In a day or two when the copious flow has ceased gauze should be applied and the patient should return to bed. Occasionally the circulatory improvement from the removal of fluid exceeds the bounds of reasonable expectation.

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Previous articles in this series are:—

- I. Medical Treatment of Gall-Bladder Disease, by Sir Humphry Rolleston. II. Early Pulmonary Tuberculosis in the Young Adult, by Dr. Claude Lillingston. III. Neuralgias of the Head and Neck, by Dr. Wilfred Harris. IV. Whooping-Cough, by Dr. T. Izod Bennett. V. Scabies and Pediculosis, by Dr. H. W. Barber. VI. Abdominal Injuries, by Prof. Charles A. Morton. VII. Aural Discharge in Children, by Mr. Harold Barwell. VIII. Vaginal Discharge, by Mr. A. W. Bourne. IX. Minor Injuries to the Eye, by Sir J. H. Parsons. X. Epilepsy, by Dr. Gordon Holmes. XI. Inguinal Hernia in Childhood, by Mr. C. W. G. Bryan. XII. Oblique Inguinal Hernia in Adults, by Prof. A. W. Sheen. XIII. Eclampsia, by Dr. Gibbon FitzGibbon. XIV. Club-foot in the Newly-born, by Sir Robert Jones. XV. Intestinal Worms, by Dr. R. Hutchison. XVI. Primary or Spasmodic Dysmenorrhoea, by Dr. G. Blacker. XVII. Measles, by Dr. Ford Caiger. XVIII. Heart Failure, Preventive Treatment, by Dr. J. Parkinson.

Special Articles.

A VOLUNTARY HOSPITALS COMMITTEE REPORT.

THE Voluntary Hospitals Committee of 1921, of which Viscount Cave was chairman, made, among other recommendations, one, that a Voluntary Hospitals Commission should be formed which would have as its principal duty the administration of the grant made by Parliament for the temporary relief of hospitals, which had fallen into financial difficulties, and that this Commission should be assisted by a number of county or county borough committees to act as its local advisers. The Voluntary Hospitals Commission, of which Lord Onslow is chairman, was constituted in accordance with the first of these recommendations, and it at once gave effect to the second by arranging for the formation of county and county borough committees throughout the country.

The first report of such a county or borough committee to reach us is that of the Surrey and Croydon Voluntary Hospital Committee, which is composed of representatives of the county council and borough council, including Dr. J. Cates, county medical officer of health, hospital representatives, local medical practitioners, and nominees of the Voluntary Hospitals Commission. These include Lord Cave, who was elected chairman of the Committee, and Sir Alfred Bingley was appointed its honorary secretary.

Report on the Hospital Accommodation Available in the Surrey Area.

At the request of the Committee, Dr. Cates prepared a report showing the extent and distribution of the accommodation available in the voluntary hospitals of the area, with suggestions as to the alterations and additions considered desirable. Dr. Cates's memorandum, reproduced as an appendix to the report, gives a complete survey of the resources and requirements of the Surrey area, so far as they relate to voluntary hospitals. In estimating the requirements of the county of Surrey he has found difficulties which would be equally inseparable from an attempt to estimate the adequacy of the existing accommodation in any county, and are thus of general interest. He points out that it is unsafe to gauge the adequacy of the accommodation at a hospital by the length of the list of patients awaiting admission, because the knowledge that there is a difficulty in obtaining beds soon acts as a deterrent both to medical men and their patients, and the authorities of a hospital may think that the needs of the locality are satisfied because there is no rush for vacant beds. Again, the absence of applicants may be due to the dislike of the rules of the hospital, dissatisfaction with the charges imposed, aversion to a member of the staff, or some other cause for the unpopularity of the institution. On the other hand, a hospital may have a long list of patients seeking treatment and rarely have a vacant bed because it is popular and attracts patients from a wide area. Medical men vary in the use they make of institutional treatment; in one district nearly all persons needing nursing are sent into hospitals, while in another admission is only sought for patients requiring an operation.

It seems clear, therefore, that some other basis for inquiry must be taken if a true estimate of the adequacy of hospital accommodation is to be made.

A Survey of Local Hospitals.

In order to form conclusions as to the adequacy of hospital accommodation Dr. Cates instituted inquiries as to 25 hospitals in the county and grouped the results in a table, included in the report, under the following headings:—

Name of hospital; medical staff; visiting surgical staff; other specialists; resident medical staff; nursing staff (trained and untrained); beds (men, women, cots, and private); number of patients in hospital per year; baths

(men, women, staff); sanitary accommodation (men, women, staff); operating theatre; out-patient department; mortuary; special department; method of admission; proposed extensions; maternity cases (normal or for surgical operations); remarks and recommendations.

Much interesting information is here collected and at the risk of appearing to emphasise the deficiencies rather than the best features at some of the hospitals we quote certain of the recommendations in the last column, for these are of more than local interest.

Extensions, in accordance with suggestions made by the Hospital Committee, are recommended at the Frimley Cottage Hospital, the Royal Surrey (Guildford) County Hospital, the Weybridge Cottage Hospital, and the Victoria Hospital, Woking. Dr. Cates notes that more beds are required at the Carshalton District Hospital, the Sutton Hospital, the Surbiton Hospital, the Epsom Cottage Hospital, and Royal Surrey (Guildford) County Hospital; more beds for children at the Dorking and District Hospital, for women and children at the Victoria Hospital, Leatherhead, and for women at the Victoria Hospital, Kingston. Mortuaries should be provided at the Cobham Cottage Hospital and Horley Cottage Hospital. Other interesting comments are made: for example, at the Caterham Cottage Hospital X ray treatment of ringworm is carried out by the matron, and a note is made by Dr. Cates that ringworm should be treated by a medical man. More domestic accommodation, bath-room and lavatory accommodation is desirable at the Sutton Hospital. As to the Reigate and Redhill Hospital he is of opinion that a new hospital is required, since money spent on an extension would be largely wasted; the needs of the district call for a modern hospital of at least 100 beds. As to the Molesey, East and West, Hospital, Dr. Cates considers that the premises should not be used as a hospital. It is noticeable that of all the hospitals under review two only, the Royal Surrey County Hospital and the Sutton Hospital, have a pathologist attached to the staff; 13 of the hospitals have a dentist attached. One only, the Thames Ditton Cottage Hospital, appears to have a gynaecologist, one, Surbiton Hospital, an aural specialist, three an ophthalmologist. To seven only of the hospitals is an X ray department attached.

Criterion for Admission to Hospital.

From a public health point of view a person should be admitted to hospital if complete recovery is jeopardised or convalescence is likely to be retarded by treatment at home. At the majority of institutions visited, it was stated that the beds were inadequate for the needs of the area. In assessing the value of this statement, it should be remembered that at many of the hospitals surgical emergencies—accidents, hæmorrhage, and the rupture of vessels—form the bulk of the work to the exclusion of more common and equally serious conditions such as pneumonia, rheumatic fever, and diseases of the heart. Until recently, it was the custom for medical men to rely on obtaining admission for any outstanding case into a London hospital. The authorities of these institutions are now reluctant to accept persons from the home counties unless they reside in the metropolitan area, and the cost of travelling still further discourages patients from seeking treatment there.

Recommendations.

Dr. Cates concludes: (1) That from the public health point of view there is reason for thinking that the total number of beds in the voluntary hospitals in Surrey is insufficient. His other main conclusions are summed up as follows by the Committee and accepted by them:—

(2) That there is a marked deficiency in hospital accommodation for women and children, and in facilities for treatment of diseases of the eye, ear, nose, and throat.

(3) That while recognising the valuable work done by the smaller hospitals, the piecemeal extension of small and unsuitable buildings, not originally planned

for use as hospitals, is to be deprecated, as hospitals so housed are difficult to administer economically.

(4) That medical work should be gradually concentrated in larger and better equipped institutions, which are more economical to administer, attract a better qualified and more efficient staff, provide for all types of diseases and defects, and, besides admitting maternity patients, give scope for eye, ear, nose, throat, and X ray specialists. Moreover, such hospitals can be self-contained and act as training centres for nurses and students, and can provide sufficient work for a motor ambulance service, thus enabling the hospital to supply the needs of a larger area.

(5) That general hospitals of this type are required in the western, south-eastern, and possibly in the northern portions of the county area—viz., at Guildford, Reigate or Redhill, and perhaps Surbiton or Epsom respectively.

Sundry Points.

Grants.—As the result of inquiry it was ascertained that only 9 out of 32 hospitals had applied for grants, and that the remaining 23 had reported either that they did not need any assistance from public funds or that they did not feel justified in asking for it. The applications of four hospitals were approved by the Committee, and certain grants were sanctioned by the Voluntary Hospitals Commission on the recommendation of the Committee.

Schemes for Extension.—The advice of the Committee was sought as to schemes for extension or rebuilding of various hospitals in Surrey and was appreciated by the hospital committees.

Accounts.—Stress has been laid by the Committee on the importance of adopting a uniform system of accounts.

Conflicting Appeals.—The attention of the Committee had been called to the question of conflicting appeals. The formation of a central fund for provincial hospitals on the lines of King Edward's Hospital Fund for London, as proposed in the annual report for 1922 issued by the Joint Committee of the Order of St. John and the British Red Cross Society, was considered likely to be a useful method of avoiding competition and overlapping.

Finance.—The administrative expenses of the Committee during the past year, which have been met by the grants from the Surrey County Council and Croydon Borough Council, of £50 and £20 respectively, are estimated at £30, including the cost of the report, leaving a balance of £40.

THE WORK OF THE PENSIONS MEDICAL SERVICE.

II.* TREATMENT OF PENSIONED DISABILITY.

In a foregoing article we dealt with the medical arrangements for determining the grounds on which are based the right to pension and the amount to be awarded. There are, however, other and many benefits for which the war-disabled, as occasion arises, are eligible.

Health, Training, and Employment.

Treatment for pensioned disability at the cost of the State includes all forms of in-patient, out-patient, and home-treatment, the supply and repair of artificial limbs and surgical appliances, and concurrent treatment and training. Under the provisions of the Naval and Military War Pensions Act of 1915 it became a function of the Statutory Committee of the Royal Patriotic Fund Corporation "to make provision for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment"; the Act of 1916 creating a Ministry of Pensions placed the Minister in control of the Statutory Committee for the purposes of health, training, and employment; the Naval and Military

* Part I. appeared in THE LANCET of May 5th, p. 918.

War Pensions Act of 1917 dissolved the Statutory Committee and made the Minister directly responsible for all three functions; and finally the Ministry of Labour (Transfer of Powers) Order in Council in 1919 transferred training and employment to the Ministry of Labour except as regards officers and men whose training or employment, by reason of their war disability, required medical supervision or could not be carried out under ordinary industrial conditions.

Treatment Allowances.

The Royal Warrants define the conditions under which the Minister may incur certain expenditures, Art. 6 of the Warrant laying down the conditions which apply to cost of treatment and treatment allowances, or in other words the conditions of eligibility for these benefits. The procedure to be followed is set forth in detailed Ministerial instructions which differ in one important respect from the "Directions for the Guidance of Chairmen and Members of Medical Boards." These "directions," which are concerned with entitlement and assessment, request of the boards their free and unfettered opinion; whereas the "instructions" deal with procedure, the provision and cost of treatment, and the like, and are mandatory. Owing to the extraordinary variety of circumstance and case constantly arising, and to the involved relations of the medical department of the Ministry with the awarding, finance, and other branches, these instructions are so intricate that they can be successfully administered only by whole-time servants of the department. On this account the Ministry has created a whole-time medical service comprising at the present time 289 medico-administrative officials.

Nice Points for Determination.

The first point for determination is that the treatment recommended—whether by medical referee, medical board, or medical attendant—is for the pensioned disability. The Warrant lays down that where it is certified that a disabled man to whom a pension, gratuity, or final weekly allowance has been awarded, should in consequence of his disablement undergo any course of medical treatment and is deemed unable in consequence—that is, in consequence of his having to undergo a course of medical treatment—to provide for his own support and that of his family, "he may be granted, &c." No doubt, in many cases, simple documentary verification suffices to decide the question of eligibility for treatment; but where the pensioner requires treatment not for his disability in terms of, but "in consequence of" his disablement—and such cases now occur and will continue to do so in increasing number with mere efflux of time—questions arise demanding careful medical consideration.

Some Illustrations.—The questions for solution and the procedure following may be very different. For example, the man pensioned for nephritis who requires treatment for bronchitis is, naturally, in a very different position from the man pensioned for "myalgia" or "rheumatism" who is discovered to be suffering from *tabes dorsalis*. Indeed, in the latter case—which is, of course, a change of diagnosis—the originally conceded entitlement may be called in question and the case submitted to a medical board of reference. Again, of two men recommended for treatment for pulmonary tuberculosis, one pensioned for pleurisy with effusion and the other for bronchitis, one will have a much stronger claim to treatment and allowances at the cost of the State than the other, though in both substantiation by a medical board, following a fresh claim under Art. 9 of the Warrant, may be required. Examples of the nice points for determination which arise either as consequential disabilities or as changes of diagnosis might be quoted without end. Each calls, and often urgently, for treatment, and whilst everyone would deprecate too meticulous a dissection of any pensioner's disabilities—this disability being due to war service and that to post-discharge causes common to the civil population—it is evident that to hold the balance even requires a

strong combination of clinical knowledge and experience of departmental precedent and Ministerial procedure. Every medical referee, member of a Ministry clinic, or hospital, shares in this responsibility, which officially falls to the deputy commissioner in medical charge of an area of the Ministry, whose approval is required before any recommendation of treatment is carried out. Through the close and friendly relations which subsist between these officials and the members of boards and clinics, a difficult task is being harmoniously accomplished with ever-increasing efficiency and with no increase of time in securing to the pensioner the most appropriate form of treatment.

Misapprehension sometimes arises as to eligibility for treatment allowances. Treatment allowances are not payable as compensation for inability to work on account of the man's disability, this being a function of the pension awarded, but are payable only when in consequence of undergoing treatment a pensioner is unable thereby to follow his remunerative employment. In such circumstances the rate of pension, whatever that rate may be, is raised to the maximum or total disablement rate, and appropriate allowances are made in respect of the man's wife and children.

Extent and Variety of Treatment.

Accurate statistics of the earlier years of the Ministry prior to its regional formation or reformation, are not readily available, but we are informed that during the year 1920, excluding pensioners suffering from tuberculosis and also ex-service men in asylums, more than 115,000 men received in-patient treatment either at the hand or at the cost of the Ministry, and over 250,000 out-patient treatment. During 1921 the in-patients numbered 105,000 and the out-patients over 258,000, whilst in the year 1922 the in-patients treated amounted to more than 85,000, and the out-patients 204,000. In round figures, therefore, some 264,000 in-patients were treated during these three years, as well as 531,000 out-patients, apart from officers and nurses. These figures do not include some 40,000 patients treated in sanatoria for tuberculosis during these three years on behalf of the Ministry of Pensions, nor the insane ex-service men in asylums who to-day number some 6000.

Special Hospitals.—Full use has been made of civil medical resources, mostly in the form of payment on a capitation basis coupled with a certain degree of supervision and control by the medical department of the Ministry; but early in the year 1919 it became apparent that for special purposes, particularly in cases of neurasthenia, special surgical, tropical and cardiological cases, and also certain cases of epilepsy, the Ministry should organise, maintain, and control the means of treatment. Ministry hospitals were therefore established in every region for these special cases. At the present time there are 37 such institutions with 10,047 beds. Of these institutions nine are for neurasthenic patients, and eight others have neurological sections. There is also one hospital with 300 beds reserved for epileptic cases. The total number of beds specially set apart in Ministry hospitals for special cases are: Neurasthenia, 2924; epilepsy, 300; dysentery, 235; limb-fitting, 161; general surgical, 4125. During 1922 more than 50,000 in-patients were treated in these hospitals. The Ministry has also established under its direct control a large number of special clinics, each administered by the D.C.M.S. of the area and staffed by approved specialists in their vicinity. These clinics not only give out-patient treatment, but carry out the duties otherwise discharged by medical referees.

No account of the treatment of the pensioner would be complete without mention of the work in connexion with the limbless at Queen Mary's Auxiliary Hospital at Roehampton, and a considerable number of limb-fitting centres distributed throughout the country, and of the important and profoundly interesting work of concurrent treatment and training. For pensions purposes everything that affects a man's disability is of importance and must be to some extent reflected in his pension.

ROYAL MEDICAL BENEVOLENT FUND:

ANNUAL MEETING, MAY 7TH.

THE annual meeting of the Fund was held this year in the Library of the Royal College of Physicians of London in order to mark the urgent nature of the appeal for the relief of distress within the medical profession.

Sir Thomas Barlow, the President of the Fund, in opening the proceedings summarised the objects and present position of the Fund—this has already been set out in THE LANCET of April 28th (p. 860)—and expressed the hope that every medical man in the country would take his share in relieving the burden of less fortunate fellow members, and that the larger public which appreciated its debt to the medical profession would help towards the same end. The financial statement and the report were then taken as read.

The Archbishop of Canterbury, in moving their adoption, said that laymen had only rare opportunities of expressing in a public manner their sense of the value of the services rendered to the whole community by the medical profession. Opportunities often occurred for cheering politicians, soldiers, and sailors, but he hardly knew of a single instance where the object of a gathering had been to cheer medical men. It was the duty of the public to help the medical profession in its difficulties and troubles in meeting the special emergencies due to hard times, for there was, perhaps, no class of the population upon whom the indirect results of the war pressed more heavily.

Lord Sumner, who seconded, said that the medical profession which was engaged in beneficent work found it difficult to put before the public their own needs, while the nature of the duties of that profession and the time occupied in performing them often precluded the medical man from making successful employment of the money he had, and from making adequate provision for the future. The working-classes were willing to make proper contributions in respect of medical assistance they received, and he thought that trade-unions might be appealed to for annual subscriptions to the Fund.

Sir Humphry Rolleston said that the medical profession was a relatively short-lived one, and many medical men were unable to make adequate provision for old age. Cases had come before the Fund where there were no means at all except the Old Age Pension. It was the duty of every medical man, according to his ability, to subscribe to the Fund, which at present received the support of only 7 per cent. of more than 7000 medical practitioners within the metropolitan area.

The financial statement and the report were then adopted unanimously.

Among those present at the meeting were Sir David Ferrier, Sir Dyce Duckworth, Sir William Hale-White, Sir Charters Symonds, Dr. Newton Pitt, Dr. Herbert Spencer, Dr. Arnold Chaplin, and Dr. J. H. Stowers.

STANDARDISED CONDENSED MILK.

THE Ministry of Health has made Regulations,¹ dated May 1st, under the Public Health (Regulations as to Food) Act, 1907, and the Milk and Dairies (Amendment) Act, 1922, entitled "The Public Health (Condensed Milk) Regulations, 1923," and has issued a circular² on the subject dated May 4th. The Regulations provide for a uniform method of labelling all tins containing condensed milk or condensed skimmed milk, whether sweetened or unsweetened, and specify the composition of the different varieties of condensed milk in terms of milk solids.

¹ Statutory Rules and Orders, 1923, No. 509, H.M. Stationery Office, price 2d.

² Circular 393, H.M. Stationery Office, price 1d.

Labelling.—All condensed milk is to be labelled with one of the four following declarations:—

CONDENSED FULL CREAM MILK,
UNSWEETENED.
THIS TIN CONTAINS THE EQUIVALENT OF
(a) PINTS OF MILK.

CONDENSED FULL CREAM MILK,
SWEETENED.
THIS TIN CONTAINS THE EQUIVALENT OF
(a) PINTS OF MILK, WITH SUGAR ADDED.

CONDENSED MACHINE-SKIMMED MILK
[or CONDENSED SKIMMED MILK],
UNSWEETENED.
UNFIT FOR BABIES.
THIS TIN CONTAINS THE EQUIVALENT OF
(a) PINTS OF SKIMMED MILK.

CONDENSED MACHINE-SKIMMED MILK
[or CONDENSED SKIMMED MILK],
SWEETENED.
UNFIT FOR BABIES.
THIS TIN CONTAINS THE EQUIVALENT OF
(a) PINTS OF SKIMMED MILK, WITH SUGAR ADDED.

The declaration is to be printed in dark block type of prescribed size on a light ground within a surrounding line which must contain no other printed matter. The label must also bear the name and address of the manufacturer or the dealer in the United Kingdom for whom it is manufactured. It is forbidden to place on the tin any comment, explanation, or reference in regard to the statement of equivalence, or to the words "machine skimmed," "skimmed," or "unfit for babies," or any instructions as to dilution unless they clearly specify that the resultant fluid is not of equivalent composition to milk or skimmed milk, or unless the resultant fluid corresponds in milk solids to milk of the standard set by the Regulations (see below). Wherever the word "Milk" appears on a tin containing condensed skimmed milk it is to be qualified with the words "Machine-skimmed" or "Skimmed." The statement of equivalence on the label is to be expressed in pints and fractions of a pint, and is to be in terms of milk containing not less than 12.4 per cent. of milk solids (including not less than 3.6 per cent. of milk fat), and skimmed milk containing not less than 9 per cent. of milk solids other than fat.

Composition of Condensed Milk.—The Regulations set the following standards:—

Description of condensed milk.	Percentage of milk fat.	Percentage of all milk solids, including fat.
Full cream, unsweetened ..	9.0	31.0
Full cream, sweetened ..	9.0	31.0
Skimmed, unsweetened ..	—	20.0
Skimmed, sweetened ..	—	26.0

The Regulations are to be enforced by the local authorities who have the appointment of public analysts, and the procedure of the Sale of Food and Drugs Acts in detecting and dealing with contraventions will be followed. At ports of importation the Regulations will be executed by the Customs authorities. Contraventions of the Regulations render the offender liable to a penalty not exceeding £100, and not exceeding £50 a day in the case of continuing offences.

All those interested in child welfare will welcome provisions which standardise the composition of condensed milk, and ensure that the purchaser obtains full information as to the value of the article bought. The Regulations are a useful check to misleading descriptions, which might with advantage be applied to many other foodstuffs.

Public Health Services.

THE HEALTH OF CAPE TOWN.

THE annual report of Dr. A. Jasper Anderson, the medical officer of health for the City of Capetown, for the 12 months ended June 30th, 1922, constitutes an interesting record of the health of a considerable community of European race living under climatic conditions differing appreciably from those of English towns and side by side with a native African population. An indication of the climate during the year under review is afforded by the following records. In the hottest month, February, the mean maximum and minimum temperatures were 83.5° and 58.6° F., the highest and lowest readings being 96.4° and 48.9°, while in the coldest month, July, the mean maximum and minimum were 62.1° and 44.9°, the extreme readings being 75.5° and 38.0°. The earth temperature at a depth of four feet varied from 54.5° in August to 69.1° in March, and the rainfall for the year amounted to 24.15 inches. The hours of bright sunshine during the eight months October to May averaged 8.5 per diem. The influence of the varying seasons on health conditions would not appear to be great, the greatest number of European deaths in any one month (June) being 116, and the smallest (January) being 91. Next for mortality to the winter month of June came the summer month of February.

The population of Capetown is 186,050 and comprises 103,520 Europeans and 82,530 non-Europeans. From the statistics submitted by Dr. Anderson we select the following:—

	European.		Non-European.	
	1913-14	1921-22	1913-14	1921-22
Population	76,940	103,520	74,560	82,530
Birth-rate	29.39	24.21	45.48	51.64
Death-rate	13.77	11.88	28.25	27.46
Infantile mortality rate.	107.96	69.03	250.54	176.44
Tuberculosis death-rate.	1.35	1.04	5.11	3.71

The European death-rate was lower than in any former year. When deaths of visitors are excluded (for Capetown is a favourite holiday resort in South Africa) the rate is only 10.63. The infantile mortality rate was much the lowest ever recorded, and the course of the mortality rates amongst Europeans must be a matter of gratification to those responsible for the health services of the city, and particularly for Dr. Anderson, who is so soon bringing to a close his long term of office as medical officer of health. His place, as we have already announced, will be taken by Dr. T. Shadick Higgins, medical officer of health for St. Pancras. The figures also show that the healthiness of Capetown compares favourably with that of English towns. The state of affairs amongst the non-Europeans is very different.

The city was fortunate in regard to most of the zymotic diseases during the year. There were no deaths at all from small-pox, measles, and scarlet fever, and, amongst Europeans, none from whooping-cough. There were 115 European cases of diphtheria (9 deaths). Enteric fever is the most troublesome of the zymotic diseases. Amongst Europeans it caused 260 cases with 27 deaths and amongst non-Europeans 244 cases with 46 deaths. There has already been an improvement in regard to enteric, and Dr. Anderson expresses the hope that it will be further reduced by the sewerage of the suburbs which is proceeding rapidly. Malaria and tropical diseases are conspicuous

by their absence. The year's work of the health department includes 627 admissions to the city hospital, 15,097 attendances at the maternity and child welfare "bureaux," 1034 at the tuberculosis "bureau," and 8574 attendances at the venereal clinic. The report discloses that there are legal powers at Capetown for dealing with matters that might well be given more attention in this country. These include the licensing of butchers, vendors of fruit and vegetables, general dealers, hawkers, bakers, ice-cream sellers, hairdressers, mattress-makers, laundries, and bioscope entertainments.

SCHOOL MEDICAL SERVICE.

Sheffield.

DURING 1922, in spite of a reduction in medical staff, over 24,000 children underwent medical examination, and of these 19.5 were found to have one or more defects requiring treatment. For 95.2 per cent. of these treatment was obtained. Four of the schools have special rooms adapted to medical treatment, and school clinics are open all the year round without a break. The babies from the Maternity and Child Welfare Centre also make use of the school clinics for treatment. The total number of children dealt with here suffering from minor ailments was 6214. "The provision which the committee have been able to make for the dental needs of the school population is, unfortunately, totally inadequate. However, although there are thousands of children receiving no dental treatment at all, a larger proportion every year are availing themselves of the treatment." Dr. Thomas Chetwood reports that in the majority of cases of enlarged tonsils and adenoids, operative interference was not indicated; "in fact, much improvement may be expected from simpler forms of treatment." Over 900 children were found suffering from partial or complete deafness, and about 500 had some form of ear disease. A general increase of interest in crippling defects has resulted in extended facilities for orthopaedic treatment; 35 such cases were treated during 1922, 23 of these being discharged before the end of the year. Unfortunately, classes for dull and backward children have not yet been established in this city. The two open-air schools are doing good work, and extension of both has been recommended. The children continue to do well, although the problem of procuring sufficient and suitable clothing is an ever-present one in spite of the generosity of teachers and the public. Indeed, the question of the quality, suitability, and cleanliness of school-children's clothing generally is a very serious one.

In the special inquiry by one of the assistant medical officers into the incidence of tuberculosis in elementary schools we find "unsatisfactory footgear implies poverty, and, as might be expected, the schools where the children are worse shod show a high rate of incidence." In spite of the fact that returns show a slight improvement in cleanliness and footgear during routine inspection it is evident that the chief superintendent of physical training, in his excellent appendix at the end of this report, comes nearer the mark when he says, "the quality of the clothing is rapidly deteriorating in poor districts owing to the distressing continuance of unemployment." It must be remembered that the standard of cleanliness at medical inspections is a spurious one. A school medical officer recently drew attention to the fact that unemployment and uncleanness go hand in hand. He reported that depression in the labour market is always reflected in an increase of uncleanness among school-children, just as periods of prosperity are marked by an improvement, not only in nutrition and clothing, but also in cleanliness, and school nurses working among large numbers of children will bear him out on this point. Another school doctor commenting on the increase of uncleanness among school-children attributes the condition to "an apathy produced by unemployment that needed a more substantial remedy than moral persuasion." The whole question of cleanliness is a

question of pounds, shillings, and pence. Cleanliness means coal; coal means money. Cleanliness of home and clothing cannot be attained without hot water, a commodity inaccessible to the poorer classes without coal. The whole question of the comfort of the working classes inevitably revolves round hot water, or, in other words, coal. Money is spent first on the necessities of life, food and the means of cooking it, and only the surplus after this is deducted is spent on cleanliness either of clothing or body. Consequently cleanliness inevitably varies inversely with prosperity. Poverty primarily shows its effect on cleanliness, and eventually on nutrition. It is unfortunate, then, that at a period of unemployment such as this, Sheffield should find it necessary in the interests of economy to close the school baths. Three of the four school baths have been closed, and as Dr. Chetwood, who deplores such a measure, points out, the facilities for bathing at home are sadly lacking. By removing the facilities at school, small as they were, the education authority connects up, as this report demonstrates, a vicious circle of uncleanness, neglect, and disease.

The superintendent of physical training, commenting on the development of school games in the elementary schools, recalls the fact that some years ago the number of games played in most school playgrounds was under ten. Often the same games were played by seniors and juniors alike, most of them being too hard for the juniors and too easy for the seniors; now most teachers arrange a progressive syllabus of games. The value of this for the mental development of the child, apart from its effect on his physical development, is obvious. The number of sports clubs connected with the city is rapidly developing, which goes to point out that the early training is bearing fruit, and the young men and women are becoming players instead of merely watchers.

Shrewsbury.

In this compact report of work done Dr. Gordon Smith remarks that the number of cases examined under the code groups is not large enough to form a basis for statistics, but is quite large enough to give a general indication of the conditions prevailing among school-children. The results of medical examination vary considerably with the home environment of the child, bearing out to a large extent what has been actually proved by the nutrition clinics in America. The percentage of dirty and verminous children in Shrewsbury has increased, and the school medical officer attributes this to loss of self-respect among parents and children owing to bad housing conditions, unemployment, and consequent scarcity of food. The clothing and footgear of the children have suffered, too, in spite of the fact that the borough police have given away hundreds of pairs of boots to necessitous children. Impetigo and ringworm have increased considerably as a natural consequence of poverty following upon unemployment. Dr. Smith notes also that the percentage of dull children has increased, and suggests that the lack of food and proper attention is reacting upon the mental condition of the children. Bronchial catarrh, a common enough condition among children badly fed and housed, also shows an increase. Out of 1249 children inspected at routine inspections, 126 were suffering from malnutrition. Out of the 93 children requiring treatment, 60 availed themselves of the ample facilities provided for treatment. Parents appear to object very little now to having operative treatment for enlarged tonsils and adenoids, but they have not yet grasped the importance of having defective eyesight remedied. The question of dental treatment, too, raises few objections, and 257 children were treated by the school dentist, only 21 failing to attend. Dr. Smith attributes the success of the dental clinic to the school dentist, who has done much to popularise the clinic by his gentle way with the children. A plea is put forward for special consideration for mental defectives, most of whom attend the elementary school, where they handicap both teachers and taught.

Gillingham (Kent).

During the year 3857 children were medically inspected, 2253 coming under the code groups. There was not one case of malnutrition found, and only one of rickets, although 315 special cases were found to have unclean heads. After routine inspection 365 were found to require treatment, and 83 special observation; 210 received treatment. Disease of nose and throat accounted for 118 children requiring treatment, and defective vision for 107. Gillingham is a healthy borough for children. In addition to the practical absence of malnutrition and rickets, there was not one case of defective hearing recorded, although routine inspection revealed 65 with ear disease; nor was there apparently a single case of eye disease, or of enlarged cervical glands (non-tuberculous), although 114 were found on routine inspection to have enlarged tonsils and adenoids, and medical inspection revealed 120 cases of dental caries. After the dental inspection of 2055 children, 366 were referred for treatment, 214 of these being treated. Dr. W. A. Muir, who was appointed school medical officer as recently as September, 1922, as successor to Dr. E. C. Warren, puts on record his indebtedness to the school nurses in carrying on the work of the department.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. D. P. Chapman is placed on the ret'd. list at his own request.

Surg.-Lt. J. S. McGrath to be Surgeon Lt.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt. Col. J. S. Bostock is restd. to the estab't. Maj. J. W. Kynaston, on relegation to the ret'd. list, is granted the rank of Lt.-Col.

TERRITORIAL ARMY.

Cpts. J. B. Orr and J. C. Knox (late R.A.M.C.) to be Cpts.

Capt. J. A. Mathers resigns his commn. and retains the rank of Capt.; and Lt. D. R. Wheeler resigns his commn. and retains the rank of Lt.

The undermentioned relinquish their commns.: Temp. Capt. O. W. Gange, and retains the rank of Capt.; Temp. Hon. Capt. H. A. Haskell, and retains the hon. rank of Capt.

General Hospitals: Capt. B. A. Lloyd relinquishes his commn. and retains the rank of Capt.

The undermentioned, having attained the age limit, are retired and retain their rank, except where otherwise stated. Lt.-Cols. Sir J. Barr and A. B. Gemmel (Bt. Col.), F. A. Southam; Maj. F. T. Paul, R. W. Murray, J. Utting, P. Davidson, J. M. Beattie, and R. A. Bickersteth; Cpts. J. R. Logan, J. M. Hunt (granted the rank of Lt.-Col.), F. C. Larkin, D. Douglas-Crawford, J. L. Roberts, C. T. Holland (granted the rank of Maj.), R. J. McL. Buchanan, W. Finland, J. Hay (granted the rank of Lt.-Col.), T. R. W. Armour (granted the rank of Maj.), L. A. Morgan, K. W. Monsarrat (Bt. Maj.) (granted the rank of Maj., with permission to wear the prescribed uniform), A. J. Evans, E. E. Glynn, E. Stevenson, and W. C. Oram.

TERRITORIAL ARMY RESERVE.

Majs. R. Griffith (Bt. Lt.-Col.) and W. D. Sturrock from Gen. List, to be Lt.-Cols.

Maj. G. A. C. Shipmen, from 4th Northern Gen. Hospital to be Maj.

Capt. J. G. Morrin, from Gen. List, to be Capt.

Capt. F. G. Armstrong, from 1st Northern Gen. Hospital to be Capt.

DONATIONS AND BEQUESTS.—Dr. Donald Peter MacLaren Farquharson, medical officer of health for Radcliffe, left £1000 in trust for the clothing of necessitous Radcliffe school-children, and for sending the delicate one to the seaside.—Towards the Lord Mayor's appeal for 2,000,000 shillings for the hospitals and infirmaries of Manchester, Salford and District, a first list of donations published showing subscriptions received or promised amounting to £20,000.

Correspondence.

"Audi alteram partem."

SERUM DOSAGE IN DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—I have read with interest Dr. C. B. Ker's paper and the instructive correspondence that has ensued. In the main I agree with Dr. Ker's views and approve of his method of dosage. I cannot see, as some seem to think, that he has done anything very wrong when he advises smaller initial doses, say of 4000 units, for milder attacks, and 8000 for severer forms. Personally, I have used doses of these amounts, and have never varied them, for the last 20 years, and the death-rate in this hospital will compare favourably with that of any other, although for the last two years it has shown a tendency to rise. But, if there is any doubt about the practitioner not being able to distinguish in the early stages the mild from the malignant cases, then it seems to me that that difficulty can be got over by advising initial doses of 8000 in all cases. But there is no need that the hospital medical officer should follow suit. He can, as the result of his experience, distinguish the malignant from the mild forms of attack, so that there is no reason why he should not decide upon the smaller dose. In the past heroic doses have been given which, it is now generally recognised in this country, do not accomplish more than the moderate doses such as Dr. Ker advises. As regards the method of administration, I have found no very marked benefit from the intravenous route.

With Dr. E. W. Goodall's assertion that "if patients are brought under treatment early—that is, on the first or second day of disease—they nearly all recover," I am afraid I cannot agree. My experience is that in the virulent forms of present-day attacks the chances of recovery from the very onset are of the poorest. I entirely agreed with regard to Dr. B. A. Peters's statement that diphtheria has suddenly altered in type in recent years. It has been noticeable in this district since 1920, and, as a matter of fact, I drew attention to its increased severity in my annual report for that year.

But, before going any further into this matter of dosage, would it not be as well to look at the whole question from a different point of view. Have we not got to that stage where we might ask: "Is diphtheria antitoxin all that we believe it to be?" I myself think there is reason to doubt it. Certainly many fatal cases which have been admitted to this hospital in recent years, several of which came in on the first and second day of disease and were given antitoxin intravenously, endorse this view. No doubt most would attribute the fatal issues in these cases to the exceptional virulence of the attacks, and that very likely is so; at the same time we ought not to forget that possibly the real cause was the fact that the antitoxic value of the serum was relatively low. I understand that diphtheria antitoxin is standardised by testing its power on guinea-pigs against the toxin of the most virulent culture of diphtheria organisms that can be obtained from any part of the world. This culture comes from New York and has been in use for over 15 years. Is there any evidence that this culture is of the same strain, or that it equals the virulence of some of the infections present in malignant attacks now so common in certain parts of this country, or that as the result of subculture over such a period of years this New York organism has not undergone material change?

Recent investigations with regard to the pneumococcus show that there is more than one strain of this organism and that each requires its own antiserum, the active principle of which is possibly an antitoxin. Similarly, clinical experience indicates that there is more than one strain in diphtheria, and, if it is so, might it not be that these different organisms produce

toxins different in virulence and different in their serological reactions, and that for their neutralisation they require different antitoxins. If this is the case, does it not explain the failure of present-day antitoxin to deal alike with mild and severe attacks of this disease, and does it not suggest the lines of preparation along which the manufacture of our standard antiphtheritic sera must take. In other words, we require a composite serum which will counteract the toxin of all strains.

Presuming that it is possible to prepare a serum of this nature, and I am anxious to try a serum made from local strains, I think it would clear up the whole question of dosage and help to remove the divergence of opinion which seems to prevail in connexion with the amount of the initial dose.

I am, Sir, yours faithfully,

W. J. J. STEWART.

Municipal Hospital, Neasden, N.W., April 23rd, 1923.

To the Editor of THE LANCET.

SIR,—May I be permitted to add my quota of experience, small though it may have been compared with that of those who have already expressed themselves in these columns. I would confine myself to a few remarks on the serum treatment of naso-pharyngeal diphtheria, based on a short series of cases met with during the winter 1920–21 at the Croydon Borough Isolation Hospital. In view of the high mortality usually noticed in this type of case it was decided to submit a series of some thirty cases to intravenously given serum. This series comprised practically all such cases met with during the period in question, no special case selection taking place. The procedure consisted in giving each case as soon as possible after admission 8000 to 10,000 units of heated antitoxin intravenously, though later on in the series half that amount of serum which had been given intravenously was also given intramuscularly. The results were, from the beginning, almost striking: membrane could be seen separating within an hour or two after injection, whilst a profuse nasal discharge dried up overnight. I would add a point, which appeared to me to be of some significance, that cases improved in proportion to the time of onset of reaction, a rigor at or soon after injection indicating a good prognosis. Fatal cases invariably failed to respond in this way.

The death-rate in the above unselected series was remarkably low—13.3—compared with that usually obtaining in this particularly virulent variety of the disease, which may be said to vary from 40 to 60 per cent. or upwards. Intravenous medication, I believe, necessary only in this type of diphtheria, combined to obtain the full benefit of treatment with intramuscular injections of smaller amounts of serum.

I am, Sir, yours faithfully,

K. SIMPSON, M.D.

Town Hall, Croydon, April 28th, 1923.

To the Editor of THE LANCET.

SIR,—Dr. C. B. Ker, in referring (THE LANCET, April 28th) to the severe type of diphtheria, of which Dr. B. A. Peters wrote, says: "I doubt very much if even 8000 units as advised by Dr. Thomson would do any more good than my own smaller doses." I am quite certain Dr. Ker has no desire to misquote me in saying this, but he has done so, for in my letter in your issue of April 7th my argument was that if 8000 units as a minimum dose was both safe and efficient, then certain results would follow. It was not I who said that 8000 units as a minimum dose was both safe and efficient, but Dr. Ker himself. In his note on serum dosage in diphtheria, in your issue of March 31st, he says: "The advisers of the Ministry of Health recommend that a dose of 8000 units should be given immediately in any case provisionally diagnosed as diphtheria. We may admit at once that such a procedure is both safe and efficient."

In further reference to the very severe type of diphtheria to which Dr. Peters refers, Dr. Ker says

he thinks serum does as little good in such cases as it does in the hæmorrhagic type, which, even if treated early, seems invariably to be fatal. I cannot understand how Dr. Ker makes such a statement, and I can only hope I have mistaken his meaning, for in my experience the very severe form of diphtheria referred to by Dr. Peters almost invariably recovers if treated with adequate doses on the first day of the disease. By adequate doses I do not mean 10,000 or 15,000 units, but 30,000 up to 60,000 units.

I am, Sir, yours faithfully,

FREDERIC THOMSON.

North-Eastern Hospital, S. Tottenham, April 28th, 1923.

To the Editor of THE LANCET.

SIR,—May I say in reply to Dr. F. E. Tylecote that, although I formerly gave larger doses to patients admitted late in the disease, it is difficult to see what can be gained by such a procedure if we cannot hope to detach toxin which has entered into combination with tissue. Even when large doses are given the death-rate rises with each day that the first dose has been delayed, which seems to suggest that the damage done in the early days is irreparable. It is very difficult to estimate the severity of different types of disease in different places and comparison is almost impossible. All I can say is that our death-rate in Edinburgh has varied of late years much as that of Dr. Peters in Bristol. For the last two years it has been only $6\frac{1}{2}$ per cent; before that it varied from 8 to 10 per cent. for some years. But perhaps this may be attributed to under-dosage, although our severe cases receive, as a rule, 40,000 units within about 24 hours of admission. I cannot help feeling that many of us give large doses because we are afraid to give small ones, and yet the difference in results from the days of the small dose is very slight, as all who witnessed the introduction of antitoxin treatment will, I think, frankly acknowledge.

I am, Sir, yours faithfully,

CLAUDE B. KER.

City Hospital, Edinburgh, April 27th, 1923.

FOURTH INTERNATIONAL CONGRESS OF REFRIGERATION.

To the Editor of THE LANCET.

SIR,—As secretary of the Papers Committee, Commission I. of the Fourth International Congress of Refrigeration, I have been requested to approach you with the object of obtaining your assistance to get into touch with members of the medical profession who would be willing to contribute any papers on the uses of artificially produced cold with regard to medical research and practice. The following is a list of subjects to be discussed at the Congress:

Verification of experiments undertaken before the war by the Russian scientist, Bakhmetieff, relating to the action of cold on living organisms. Cryotherapy in the treatment of certain skin diseases. Use of refrigeration in anatomy. The action of refrigeration for the amelioration of opotherapy; corresponding refrigerating installations. Biological study of milk preservation by refrigeration; bacteriology of ice-cream. Biological study of chilled and frozen produce (meat, fish, eggs, vegetables, fruits, &c.). Use of frozen eggs in food preparation; bacteriological examination. Refrigeration by the circulation of defibrinated blood. Refrigerating installations in hospitals and dwelling-houses. Operation and maintenance of refrigerating installations from the point of view of health and hygiene. Handling of frozen produce. Moulds in cold stores, and the means of combating them. Moulds in meats and other frozen produce. In addition, Mr. d'Arsonval proposes to contribute a report on the Preservation of Serums and Vaccines by Refrigeration.

Any help you could give in the matter would be highly appreciated. The Congress is to take place in London about June, 1924.

I am, Sir, yours faithfully,

JOHN D. FARMER.

Dartford Iron Works, Dartford, Kent, May 3rd, 1923.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR,—Beginning in 1915, I treated, with Mr. Henry Spahlinger's method, 294 cases of tuberculosis, mostly pulmonary. The serum was used in 189 cases and the vaccine in 105 cases of a less acute type. These patients had not responded to ordinary methods of treatment. It has been difficult to compile exact statistics for the following reasons: (1) I have had to work only with partial sera and partial vaccines; (2) these were intermittently supplied; (3) during certain periods I have been obliged to use sera three or four years old; (4) in order to economise the antitoxins, so difficult to secure, I have often employed them during only a short period, to check acute symptoms or to arrest a new outbreak or a rapid extension of the disease; (5) supplies were too limited and frequently insufficient for the prolonged treatment necessary for the very grave cases I had in hand. The result was that patients have often left much improved instead of being clinically cured, as would probably have been the result if I could have continued the intensive treatment. Under these conditions it is evident that statistics cannot show the real value of Mr. Spahlinger's two specifics.

In 1919–20 I selected from 300 sick Russian prisoners 50 very severe cases, most of them suffering from pulmonary tuberculosis, some complicated by secondary tuberculous lesions of the larynx, abdomen, and joints. With a fairly complete series of fresh partial sera then available I obtained 82 per cent. of recoveries, enabling the patients to return to work, 12 per cent. remained stationary, and 6 per cent. died. Of the 189 severe cases treated with partial serum 80 per cent. show favourable results (complete recoveries or arrest of the disease). Of the 105 cases of a less acute type, who were treated with partial vaccines, 77 per cent. were cured or much improved and 23 per cent. little or not influenced. It is important to note that the vaccines were employed only when the evolution of the disease had not responded to the ordinary methods of treatment, including aërotherapy and altitude. Therefore taking the whole of the 294 cases, the positive results are: 80 per cent. for the serum and 77 per cent. for the vaccine.

Statistics compiled under the difficulties to which I have referred are possibly of less value than observations made from study of cases such as those which I append. My experiences clearly demonstrate the importance of a large polyvalence, requiring over 20 different partial sera, the combination of which is found to be indispensable in order to treat with success the different toxic manifestations of the disease. I have employed in the treatment of my patients three different types of partial antituberculous sera: antitoxic, anti-endotoxic, and antibacterial, all three polyvalent. In advanced or acute cases of tuberculosis antitoxins are required in order to neutralise the toxins and to support, by passive antitoxic immunity, an organism which cannot sufficiently defend itself. Symptoms of intoxication such as pyrexia, profuse perspiration, vomiting, anorexia, &c., I have found to yield in a few weeks if the patient's resisting power can be supported with sufficient polyvalent antitoxin.

Surgical cases are most successfully treated with a mixture of anti-endotoxic and antibacterial sera. They induce a much more rapid recovery than other treatments, such as the sun-cure. It is of advantage to inject the surgical sera directly into the foci. Numerous experiences have shown that the antibodies do not invariably suffer from alteration through the gastric juices when taken by mouth fasting. I have found that serum given by mouth during the night is most effective in some cases of tuberculosis of the intestines, while other similar cases do not appear to respond to the treatment by mouth.

When a partial serum (for instance, No. 2) which in certain cases, produces favourable results was replaced by another partial serum (for instance

No. 3), even if chosen from the same type such as antitoxins, the patient at once stopped improving and the progression of improvement only recommenced when the successful serum No. 2, which was first employed, was resumed. Yet the ineffective partial serum No. 3 had given most beneficial results in other forms of tuberculosis. These experiences have been made many times with the different partial sera, and they establish the importance of the polyvalence of the serum.

I have never had the complete vaccines, as used in 1913-14; only partial vaccines have been at my disposal. The patients who have recovered by means of these partial vaccines cannot be considered as immunised and thus prevented from any relapse. I have come to the conclusion, however, that Spahlinger's partial vaccines produce undeniable curative effects. They are most helpful in completing the recoveries of patients who, with the assistance of the serum, have overcome an acute condition. I have used the partial vaccines alone in afebrile pulmonary and in all forms of surgical tuberculosis. The temperature reactions, which sometimes take place immediately after the injections (especially after the strong solutions), are harmless and quickly disappear. These vaccines have never produced a flare-up of the disease with lasting high temperature.

It should be noted here that surgical cases can be successfully treated either by anti-endotoxic and antibacterial sera, or by vaccine. The immediate results of the serum, especially when injected in or near the tuberculous lesions, are more rapid; but there is always a possibility of recurrence of the morbid symptoms after the treatment has been stopped. With vaccine the improvement does not commence so quickly and only becomes noticeable when the patient has attained a certain degree of immunity. The results, however, are of a lasting nature. It is therefore advisable to treat surgical cases with vaccine alone when available.

Descriptive Cases.

CASE 1. *Mr. M. O.*—Affected with tuberculosis of the sternum, with large collection of pus. T.B.+. Had been operated upon in Germany three times without benefit. During the summer of 1919 I treated this patient for two and a half months with an all-day long sun-cure. At the beginning this big lesion appeared to close up superficially, but it was suppurating internally, and again we had to draw off the pus, proving that the sun-cure was ineffective. Following Mr. Spahlinger's suggestions I injected antibacterial partial serum Nos. 5 and 21 deep into the abscess itself and also into its periphery. This treatment was continued for a few weeks. It led to the gradual disappearance of the infiltrated foci, to the drying up of the fistulae, and effected a cure which proved to be of a lasting character.

CASE 2. *Mr. M. T.*—Patient had been suffering for a year with profuse hæmoptysis. In August, 1919, chest examination showed total infiltration of left lung and of right base, with acute softening of left apex. Also abdominal tuberculosis. No appetite, violent abdominal pains, vomiting, temperature 39°C., rapid emaciation (7 kilos during the last four weeks). T.B. in sputum and stools. His condition appeared too severe to permit of a therapeutic treatment being attempted. Nevertheless, I started injections of antitoxins, but as patient's condition was extremely critical I administered also by mouth a partial serum which had previously shown itself most efficacious for intestinal lesions. In one week vomiting and abdominal pains disappeared, temperature became normal. In a month and a half the weight had increased by 8 kilos and disease appeared to be arrested. The serum was then stopped, but pulmonary and abdominal symptoms reappeared gradually, and four months after they were acute once more. Serum treatment was resumed, and 20 days' treatment with the same partial serum, given by mouth, was necessary before the symptoms commenced to diminish. I then continued to give the serum by mouth and by injections without stopping, and by the end of 1920 a cure was obtained with a gain of 10 kilos in weight. Since then the recovery has been maintained.

CASE 3. *Mr. J. F.*—Had previously had sanatorium treatment, but with no definite results. Cavity at left apex with acute softening of the surrounding areas, massive infiltration throughout the whole of left lung, widely disseminated miliary disease in right lung, abdominal tuberculosis (violent pains, tympanism, vomiting), bilateral epididymis, with seven suppurating fistulae, lupus lesion on nose, high

temperature, pulse 129, numerous T.B. in sputum, very profuse night sweats, emaciation (2 st.), condition of collapse, all symptoms showing a generalisation of the disease. A fatal prognosis within a very short time was given by the physicians who examined him at that period. The Montana altitude treatment having failed to improve this patient, and his condition becoming rapidly worse, injections of three partial antitoxins were started in May, 1921. Injections of 2 c.cm. of a mixture of these three partial sera for 13 days reduced temperature to 38°C. This treatment was continued for a further period of 20 days and brought the temperature to normal. The T.B. number in sputum decreased in two months from 60 per cent. to 20 per cent., and in the following two months to 8 per cent. The antitoxic treatment had dried up the cavity and stopped the digestive troubles. The patient's weight increased by 9 kilos. The profuse suppuration from the bilateral epididymis having not been influenced by the antitoxins, antibacterial serum was then added to the antitoxins. It rapidly stopped the discharge and reduced by 75 per cent. the tumefaction of the testicles. The lupus lesion had disappeared. Five months after I added to the antitoxic and antibacterial sera some partial vaccine in order to create an active immunisation. This man, who was dying at Montana early in 1921, has now been working since the beginning of this year.

CASE 4. *Mr. H. J.*—Tuberculosis of the lungs since 12 years, with hæmoptysis and occasional rises of temperature. In 1920 I found a slight infiltration throughout left lung. Temperature normal; 2 or 3 T.B. per field. Patient debilitated. For ten months various treatments, such as creosote, tuberculin, Dr. Rous's angiolympe, and other supposed specifics, were tried to improve this stationary case, but unsuccessfully. I then tried Mr. Spahlinger's partial vaccines. Some of the injections were followed by a rise of temperature to 39°C., which lasted a short period, never exceeding 48 hours, without producing any alarming focal reactions. Gradually all symptoms of activity disappeared, and physical signs became quite dry. The occasional spells of pyrexia with stained sputum or hæmorrhages completely ceased, and the general condition became quite satisfactory. Seven months from the beginning of the vaccine treatment patient started work again, and the cure appears to be perfectly lasting.

I have had many similar cases. These partial vaccines, although they cannot protect a patient against a possible relapse, are very active in improving and curing chronic cases and in consolidating improvements obtained by means of the sera.

Basing my statement on 28 years' experience of tuberculosis and on the last eight years' work with Spahlinger's specifics, I come to the following conclusions:

- (a) The serum has a remarkable antitoxic action.
- (b) Each partial serum is effective in some form of tuberculosis.
- (c) A polyvalent serum is necessary to obtain a high percentage of recoveries in acute or advanced stages of the disease.
- (d) This serum treatment can be successfully applied to the most severe cases, when no other means could produce any results.
- (e) The partial vaccines have a marked curative effect.

I am, Sir, yours faithfully,

May 1st, 1923.

D. TH. STEPHANI.

THE TEACHING OF OBSTETRICS.

To the Editor of THE LANCET.

SIR,—In your summary of Dr. Janet Campbell's report to the Ministry of Health on the Teaching of Obstetrics (THE LANCET, April 28th, p. 869) it is stated that St. George's Hospital (amongst others) has no maternity beds. Although this was correct at the time the report was presented, I would point out that this hospital now has a fully equipped maternity ward of ten beds, and I should be glad if you would insert this in your journal so that it may be as widely read as, I have no doubt, was the article in question.

I am, Sir, yours faithfully,

F. J. FRANKAU,

May 4th, 1923.

Deputy Treasurer, St. George's Hospital.

* * We noted that provision of maternity beds was under consideration, and are glad to learn that it was so promptly made.—ED. L.

TUBERCULOSIS OF SACRO-ILIAC JOINT.

To the Editor of THE LANCET.

SIR.—Your correspondent, Mr. P. B. Roth, in his letter to THE LANCET of May 5th points out that my paper on sacro-iliac tuberculosis must have been written prior to the publication of Dr. A. Rollier's "Heliotherapy"; and he questions, first, the rarity of the disease in view of the 83 cases mentioned by Dr. Rollier, and secondly, the necessity for the radical treatment advocated by me. Mr. Roth is quite correct in his surmise: the paper was written early in 1922 and read at the Liverpool Medical Institution in October of the same year. Nevertheless, in spite of the subsequent publication of Dr. Rollier's book and Mr. Roth's gentle criticism, I maintain the statements in my paper, for the following reasons:—

Whitman, quoting the statistics of the Hospital for Ruptured and Crippled during a period of 20 years, gives the following figures for tuberculous disease: spine, 4299; hip, 3329; all other joints, 3222; these figures certainly appear "impressive" when compared with those for sacro-iliac tuberculosis. Later on he says, "Tuberculous disease of the sacro-iliac articulation as compared to disease of the spine or hip-joint is a rare affection and extremely so in childhood." This view is shared by other authors. Dr. Rollier's book not being available at the moment, I am unable to settle the important question as to whether the diagnosis of tuberculosis was verified in all his cases by the finding of the *B. tuberculosis*, especially in those without sinuses.

With regard to Mr. Roth's second point, the necessity for operation, I should like to quote the following extract from your review of Dr. Rollier's book:—

"Routine operative treatment has been entirely abandoned, except for unilateral renal disease and for cases showing large inabsorbable sequestra, while in closed joint lesions practically the only excision that is ever advised is that of the knee-joint in rare adult cases where the disease is very torpid and ankylosis inevitable."

Now in describing the pathology of the disease I pointed out that sequestra are common (the one in my case measured $1\frac{1}{2}$ in. diameter), and that intrapelvic abscess is commoner than extrapelvic, two conditions which appear to call for operation. Finally, it must be admitted that the cold dry air and bright sunshine required for heliotherapy are unfortunately conspicuous by their absence over the greater part of this island, and for the poorer classes at any rate the high Alps are inaccessible.

I am, Sir, yours faithfully,

Liverpool, May 5th, 1923.

H. C. W. NUTTALL.

DYSMENORRHOEA A SYMPTOM.

To the Editor of THE LANCET.

SIR,—Many distinguished gynaecologists from various parts of Great Britain took part in the discussion on dysmenorrhoea introduced by Prof. Blair Bell at the recent meeting of the British Congress of Obstetrics and Gynaecology. If Dr. Lamond Lackie, who presided jointly with Dr. Herbert Spencer, is reported rightly in THE LANCET of April 28th, he referred in summing up to the "enormous diversion of opinion between various speakers. Apparently," he said, "we were disagreed about the frequency of dysmenorrhoea, its causes, and its classification, and its possibility of cure."

This is a very unfortunate state of affairs, and is probably due to trying to make out of a single symptom—namely, pain in association with menstruation—a disease. Prof. Blair Bell quoted Marion Sims, who in 1880, he said, had first insisted that dysmenorrhoea was a symptom and not a disease, a point of view which no one disputed to-day. This appears to have been the only statement practically in which there was unanimity of opinion, as no one present appears to have dissented from it. Indeed, no one could dispute the statement, for it is a fact beyond dispute. Why not, therefore, drop altogether the term dysmenorrhoea, or at least not speak of it as a disease, but merely as a

symptom of many pathological conditions in well-recognised diseases associated with the female genital organs, and certain constitutional states, such as neurasthenia. Only the week previous to the publication of the proceedings of the Congress an article appeared in THE LANCET on the Treatment of Primary or Spasmodic Dysmenorrhoea, by Dr. G. F. Blacker. But Prof. R. J. Johnstone, of Belfast, in his remarks at the Congress said he was very glad that Prof. Blair Bell had made a clean sweep of the old terminology of congestive and spasmodic dysmenorrhoea.

Dysmenorrhoea is a symptom, and should be treated as such, and such only. Dr. J. S. Fairbairn, in his remarks, said he wished to observe that no uterus was made to pattern, and simple variations had not been taken into account. Surely the uterus is made to pattern, and that pattern is what the consensus of recognised opinion has defined as the normal uterus, and the variations from the normal, such as under-development, acute ante-flexion, and the like, are the very conditions which are associated with painful menstruation. The factor of pain in such conditions should be dealt with in text-books of gynaecology under their respective headings, and dysmenorrhoea not given a special chapter as if it constituted a disease in itself. If this plan were adopted it would at once do away with all such terms as intrinsic, extrinsic, congestive, spasmodic, membranous, and ovarian dysmenorrhoea.

I am, Sir, yours faithfully,

Bentinck-street, W., May 1st, 1923.

F. L. PROVIS.

THE TREATMENT OF STAMMERING.

To the Editor of THE LANCET.

SIR,—In the London County Council report of the classes for stammering children, issued under the Public Health Department for 1920, it is stated that 50 per cent. of the cases treated were discharged cured. Dr. E. W. Scripture stated in his paper¹ that not more than 5 per cent. of treated cases ever fully recover. Although the pathology of stammering has never fully been established, I think a lot more might be done to systematise the treatment; there are still many unqualified men treating stammerers, and the percentage of cures is not as large as it should be. It is clear to me, after my experience, that stammering is definitely a neurosis, caused by a congenital tendency, a predisposition, reacted on and made virulent by an external cause—e.g., shock, fear, unfavourable environment. In the X-ray Department at St. Thomas's Hospital it was proved that every stammerer is accompanied with defective movement of the diaphragm, resulting in bad breath control, poor voice, and so on. As in so-called shell shock, the repression of fear leads to defective coördination; faulty speech movement is the result. A feeling of opposition may in certain cases be the cause of stammering, when the environment is unfavourable, but about 60 per cent. of the 500 cases of stammering I had through my clinics in London were caused by the shock of air-raids, the repressed emotion causing defective coördination. Surely stammering can here be classed with other forms of neurosis and treated as such. A stammerer certainly needs treatment, both mental and physical, but cannot the two be amalgamated? Exercises for breath control, relaxation, the cultivation of the melodious voice should be taught in such a way as to give the right suggestion in confidence, self-assertion, and control. No stammerer can be permanently cured by tricks; a stammerer already feels different from his environment, and the treatment should make him feel normal. He has to be given the means of free self-expression by speech the natural and normal method, but as yet I do not feel we have discovered the quickest way of giving that self-expression.—I am, Sir, yours faithfully,

MURIEL H. WIGGLESWORTH,

Late of St. Thomas's Hospital Speech Clinic and the L.C.C. Stammerers' Clinics.

April 27th, 1923.

¹ THE LANCET, April 14th, 1923, p. 749.

UNIVERSITY OF CAMBRIDGE.—A short course for the diploma in Psychological Medicine has been planned to be held in Cambridge from July 10th to August 17th. The subjects covered will be the physiology and anatomy of the nervous system, psychology, psychopathology, mental deficiency, and practical psychiatry. Attendance at separate lectures can be arranged. Applications to attend the course should be sent before June 7th to the secretary, D.P.M. Committee, Psychological Laboratory, Cambridge, from whom further particulars can be obtained. If a sufficient number do not apply the course will not be held.

at Trinity Term 1921. The prize is now of the value of about £100, and is awarded for original research in any subject comprised in the following list: Animal and vegetable morphology, physiology and pathology, and anthropology. Candidates must forward their memoirs to the registrar of the University of Oxford before March 31st. The memoirs may be printed, typewritten or in manuscript; should be inscribed "Rolleston Memorial Essay;" and should bear the name and address of the author. No candidate will be eligible: (1) Who has not either passed the examinations for the B.A. degree or the B.M. degree at Oxford, or for the B.A. degree or the M.B. degree at Cambridge, or been admitted as a candidate for the degree of B.Sc. at Oxford, or as an advanced student for the degree of B.A. at Cambridge; (2) who has exceeded a period of six years from attaining one or other of these qualifications, or from his attaining the first of such qualifications, if he has attained more than one; (3) who has exceeded ten years from his matriculation.

The election to the Senate has resulted in the appointment of the following :—

By His Majesties in Council.—Prof. Sir Arthur Schuster,
F.R.S., and Dr. W. C. Unwin, F.R.S.
By Convocation.—Divinity: The Rev. J. A. Douglas, Arts:
Messrs E. C. Higgins and the Rev. H. B. Workman, Medicine:
Messrs R. A. Young, C.B.E., Science: Mr. C. W. Crook, M.P.,
Dr. C. W. Kannals, and Sir Sydney Russell-Wellis, M.P.
By the Royal College of Physicians of London.—Dr. J. Fawcett,
F.R.S., and Dr. W. C. Unwin, F.R.S.
By the Royal College of Surgeons of England.—Mr. V. Warren
F.R.S., and Dr. W. C. Unwin, F.R.S.

A lecture on the Psychology of Epilepsy will be given at the house of the Royal Society of Medicine, 1, Wimpole street, London, W. 1, by Dr. E. D. Wiersma, Professor of Psychiatry and Neurology in the University of Groningen, on May 24th, at 5.15 P.M. The chair will be taken by Dr. Robert H. Cole. The lecture, which will be delivered in English, is addressed to advanced students of the University and to others interested in the subject. It has been arranged under a scheme for the exchange of lecturers between England and Holland. Admission is free, without ticket.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—As the result of the recent Final Examination of the Conjoint Board, held from April 3rd to 26th, the following candidates were approved in the under-mentioned subjects, but are not eligible for diplomas:—

Medicine.—F. J. A. Armonson and W. A. Atkins, Birmingham;
O. D. Ballinger, Oxford and St. Bart.'s; A. A. Battson,
St. Thomas's; R. C. Baxter, Charing Cross; Dora M. Berry,
Royal Free; D. H. Berry, Guy's; E. J. Blackaby, St.
Bart.'s; T. S. Blackledge and E. R. Boland, Guy's; W. B.
Boone and R. T. Brain, London; M. A. B. Brito-
Mutunayagam, St. Thomas's; C. O. S. B. Brooke, St.
Bart.'s; R. Brooke, Guy's; B. H. Burns, St. George's;
Kathleen F. Butterfield, Royal Free; N. E. Chadwick,
St. Bart.'s; W. J. B. Chidlow, Liverpool; J. H. K. Clarke
and L. T. Clarke, Birmingham; Gladys M. Cox, Royal Free;
Cecily D. Crosskey, Birmingham; J. A. Currie, Guy's;
D. D. R. Dale, St. Bart.'s; Nancy B. Daniell, King's Coll.
C. K. David, Univ. Coll.; A. B. Davies, Birmingham;
Gwladys D. Davies, King's Coll.; A. J. Dodhi, Bombay;
G. A. Dolman, King's Coll.; A. F. Doyle, St. Thomas's;
Helen M. Du Buisson, King's Coll.; G. Dudley, Birmingham;
W. H. Dunn, St. Thomas's; P. Ellman, Manchester;
H. N. K. Elphick, King's Coll.; J. L. Faulk, Guy's; A. E.
Ferguson, St. Thomas's; C. W. S. Fernando, Univ. Coll.;
H. L. Fisher, St. Bart.'s; K. Fletcher-Barrett, St. George's;
Mary E. Fox, Royal Free; M. W. M. Gadrat, Paris;
N. G. C. Gane, Middlesex; G. F. Gibberd, Guy's; W. A.
Gornall, Bristol; W. Gough, Birmingham; R. J. Gregory,
St. George's; Elsie C. Griffin, Charing Cross; Rachel
Halperin, Univ. Coll.; Nancy M. Hield and Gladys Hill,
Royal Free; B. O. Hillman, Birmingham; Mary D.
Horton, Birmingham; Phyllis M. Horton and Kathleen M.
Hyslop, Royal Free; C. Ive, Guy's; W. O. C. Jarratt,
St. Thomas's; J. Jones, Univ. Coll.; C. E. Keast, Guy's;
H. N. C. V. G. Kelaart, Ceylon; K. L. E. Kellgren, Royal
Free; M. E. P. Killard-Leavey, Guy's; Charlotte A.
Kingdon, St. Mary's; C. d. W. Kitcat, St. Bart.'s; D.
Kostitch, King's Coll.; K. H. Lachlan, Westminster;
R. E. Lane, Guy's; E. R. P. Madram, Royal Free; C. C.
Mahoney, St. Mary's; P. Marshall and Margaret
D. Mason, London; Gertrude M. Mayhall, Leeds; Ethel
W. Morris, London; A. C. Moyle, St. Thomas's;
L. Mushin and C. A. Nadicarianda, London; M. F. Nicholls,
St. George's; H. M. O'Brien, Birmingham; P. H.
O'Donovan, London; H. L. Oldershaw, St. Bart.'s; Jean
Orr-Ewing, St. Mary's; J. Pearce, Westminster;
Florence M. Pearson, St. Mary's; R. P. Perera, Ceylon and
London; A. C. T. Perkins, King's Coll.; A. T. W. Powell,
Guy's; T. M. Preece, St. Bart.'s; Evelyn R. Pyke, London;
K. Rai, Middlesex; A. J. Reed, London; R. D. Reid,
St. Bart.'s; Laura M. Rhodes, Royal Free and St. Mary's;
W. L. Roberts, Cambridge and Univ. Coll.; St. Mary's,
Middlesex; Annie E. G. Rowlands, Univ. Coll.; T. E.
Ryves, St. Bart.'s; Katharine F. E. Sanders, King's Coll.;
J. N. Sankey, Birmingham; P. N. Seth, London; W. P. H.
Sheldon, King's Coll.; A. E. Sherwell, Bristol; A. J.
Smyth, St. George's; L. V. Snowman, Cambridge and
St. Mary's; Betty Stainer and Muriel A. Stephens, King's
Coll.; M. H. Steyn, St. Thomas's; Edith C. Summerskill,
Charing Cross; H. C. C. Taylor, Guy's; H. A. Thomas,
Liverpool; J. H. Thompson, Univ. Coll.; Doris Todd,
St. Mary's; B. M. Toop, London; N. C. Tughan, Univ.
Coll.; Helen Turover, Charing Cross; Beatrice M. Upshon,
Royal Free; Hygeia L. J. Wallace, Charing Cross; E. H.
Watkins and R. G. R. West, St. Bart.'s; N. L. White,
Univ. Coll.; Doris Williams, Westminster; E. L. Williams,
London; Elsie J. Williams, Royal Free; H. C. M. Williams,
St. Bart.'s; I. E. Wolf, Lausanne; A. W. Wood, Bir-
mingham; Constance A. P. Wood, King's Coll.; J. T.
Wybourn, St. Mary's; Mildred M. E. Yate, Royal Free;
and Joyce P. Yeoman and E. Zimmerli, St. Mary's.

Surgery.—N. F. Adeney, Cambridge and St. Mary's; G. F. Axon, Charing Cross; S. C. Bakhle, Guy's; W. E. Barnie-Adshead, Birmingham; L. G. Blair, London; Hilda A. Bond, Univ. Coll.; W. A. Caldwell, Guy's; E. H. P. Cave, King's Coll.; H. D. Chalke, St. Bart.'s; B. A. Coles, Westminster; A. B. Cooper, St. Bart.'s; V. Cotton-Cornwall, Liverpool; A. B. Davies, Birmingham; P. O. Davies and J. R. B. Dearden, St. Bart.'s; J. S. Dees, Middlesex; D. Diamond, St. Bart.'s; K. S. Dickinson, Durham; G. P. Driver, R. H. Enoch, and G. S. W. Evans, St. Bart.'s; J. L. Farquharson, St. Thomas's; Emily L. Franklin, King's Coll.; G. F. Gibberd, Guy's; G. v. Gollerkeri, Bombay and Middlesex; N. M. Goodman,

London; F. M. Gore, Birmingham; S. A. Grant, London; L. J. Green, Westminster; S. Halperin, St. Thomas's; G. E. R. Hamilton, King's Coll.; M. Hawke, Guy's; B. D. Hendy, London; M. Honigsberger and L. G. Housden, Guy's; C. Iszatt, London; A. H. Johns, St. Bart's; B. H. Jones, St. Thomas's; G. L. S. Kohnstamm, King's Coll.; K. H. Lachlan, Westminster; P. E. M. Lanier, Middlesex; A. L. Lankester, Cambridge and St. Thomas's; T. Latham, Manchester; C. E. M. J. Libert, King's Coll.; B. S. Llewelyn, Westminster; A. R. Macdonald and G. B. McMichael, St. Bart's; C. A. Martin, London; J. Maxwell, St. Bart's; G. A. Metcalfe, St. Thomas's; S. W. H. Moul, Charing Cross; J. R. Nicholson-Lailley, Bristol; E. Obermer, St. Bart's; Carrie H. Osmond, Bristol; J. Parrish, St. Bart's; G. W. V. Parry, Guy's; Louisa O. Paterson, Royal Free; J. N. D. Paulson, St. Mary's; R. T. Payne and J. W. Poole, St. Bart's; Beatrice M. Powell, Royal Free; C. A. Probert, Guy's; W. A. Rankin, Westminster; R. Riley, Cambridge and St. Mary's; Nora A. Robinson, Charing Cross; T. Robson, St. Thomas's; G. F. Rowbotham, Manchester; J. M. Scott, St. Bart's; W. P. H. Sheldon, King's Coll.; J. A. Smorfit, Leeds; A. C. Sommerville, King's Coll.; W. Stephenson, Durham; E. R. S. Sweeney, St. Mary's; P. Thwaites, St. Bart's; H. S. Townsend, King's Coll.; A. Turner, St. Mary's; S. Vatcher, Cambridge and London; Marian E. Williams, Royal Free; R. K. Wilson, Cornum, Guy's; R. E. Wilson, London; and E. Wornum, Guy's.

Midwifery.—B. Abelman, Liverpool; Iris I. G. Adams, St. Mary's; J. C. Ainsworth-Davis, St. Bart's; J. N. Alexander, Guy's; L. V. Angel, Liverpool; E. N. C. Annis, Guy's; F. H. Armanious, St. Thomas's; C. F. Ashby, Guy's; and I. Atkin, St. Bart's; W. A. Atkins, Birmingham; P. E. Bardsley, St. Thomas's; St. C. E. J. Barrett, Middlesex; R. C. Baxter, Charing Cross; J. S. Benzecry, Univ. Coll.; D. H. Berry, Guy's; H. M. Bird, Middlesex; T. S. Blackledge, Guy's; A. J. Boyd, St. Thomas's; Gwendolen J. Brooke, Univ. Coll.; Edna V. Butler, Bristol; W. A. Caldwell, Guy's; Eileen A. Chennell, St. Mary's; W. J. B. Chidlow, Liverpool; J. H. K. Clarke, and L. T. Clarke, Birmingham; N. B. Cooke, Liverpool; R. Cove-Smith, King's Coll.; R. S. Creed, St. Thomas's; Cecily D. Crosskey, Birmingham; S. S. Cruden, St. Bart's; S. H. Currie, London; C. H. C. Dalton, St. Bart's; Agnes S. Daniel, St. Mary's; A. B. Davies, Guy's; G. I. Davies, Univ. Coll.; A. M. Deane, St. Thomas's; F. M. Deighton, Univ. Coll.; T. D. Deighton, St. Bart's; J. A. F. Denysen, Guy's; Miriam Phoebe de Villiers, Royal Free; J. C. G. Dickinson, Guy's; K. S. Dickinson, Durham; A. S. M. Douglas, Guy's; E. F. Duck and Doris L. Durie, Univ. Coll.; H. E. K. Eccles, St. Bart's; Barbara J. Edwards, Birmingham; C. L. Elgood and J. Elgood, St. Bart's; Josephine O. Ellen, Charing Cross; H. N. K. Elphick, King's Coll.; M. Emery, Basle; W. M. Evans, Univ. Coll.; S. W. Eveson, London; Mary E. Fox, Royal Free and St. Mary's; T. F. Fox, London; Dorothy E. Galbraith, Royal Free; A. Gelberg, Middlesex; W. T. M. Gentle, St. Mary's; W. H. George, London; G. V. Gollerkeri, Bombay; A. W. Gott, Leeds; C. W. Greenway, Guy's; R. J. Gregory, St. George's; W. E. Grice, Middlesex; C. J. P. Grosvenor, St. Bart's; J. A. E. M. Hadley and L. W. Hale, Univ. Coll.; C. C. Halliwell, St. Thomas's; G. E. R. Hamilton, King's Coll.; R. C. Hatcher, Bristol; M. Hawke, Guy's; Nancy M. Hield and Gladys Hill, Royal Free; B. O. Hillman, Birmingham; May D. Horton, Birmingham; Katherine E. W. Hulse, Charing Cross; Kathleen M. Hyslop, Royal Free; C. Ive, Guy's; C. M. Jennings, St. Bart's; I. S. Jones, Liverpool; J. Jones, D. J. Jones, St. Thomas's; N. A. Jory, St. Bart's; C. E. Keast, Guy's; H. C. N. v. G. Kelaart, Ceylon; R. A. E. Klaber, St. Bart's; E. H. Koerner and R. E. Lane, Guy's; O. B. Lean, Univ. Coll.; W. R. A. Line, Birmingham; W. A. Lister, London; D. T. Lloyd, St. Bart's; R. J. Lythgoe, Univ. Coll.; J. A. Macfadyen, St. Bart's; R. R. Macintosh, Guy's; R. S. MacLachlan, Middlesex; L. P. Marshall, St. Thomas's; H. J. Mann, St. Mary's; T. F. London; Lucy M. T. Masterman, St. Mary's; T. F. Meyrick and H. D. N. Miller, King's Coll.; Elspeth B. Moffat, Royal Free; C. A. Moody, St. Bart's; G. O. Morgan, King's Coll.; H. S. Morley, Univ. Coll.; G. O. Morris, Guy's; Una Frances M. Morton, Univ. Coll.; L. N. Moss, St. Mary's; A. C. Mowle, St. Thomas's; Jeannette F. L. Murray, St. Mary's; C. Myers, Sheffield; M. Myers, Durham and Guy's; Josephine W. Nagel, Royal Free; E. E. Neser, Guy's; J. W. Newbold, Univ. Coll.; F. N. Newell-Roberts, Guy's; C. E. Newman, King's Coll.; Frances L. Nichol, Royal Free; J. R. Nicholson-Lailley, Bristol; H. M. O'Brien, Birmingham; T. J. O'Donnell, London; T. B. Pahlajani, Charing Cross; R. T. Payne, St. Bart's; Edith G. Peacock, Charing Cross; G. G. Penman, St. Thomas's; Annie Pichalmuthu, Madras; J. W. Poole, St. Bart's; Evelyn R. Pyke, London; K. Rai, Middlesex; Violet R. H. Rains, King's Coll.; Laura M. Rhodes, St. Mary's; L. E. Robinson, Univ. Coll.; T. Robson, St. Thomas's; M. Rockfelt, Univ. Coll.; E. J. H. Roth and T. E. Ryves, St. Bart's; J. N. Sankey, Birmingham; R. W. Savage, St. Bart's; Margaret B. Savory, Univ. Coll.; R. W. Scarff, Middlesex; J. M. Scott, St. Bart's; H. Seelenfreund and T. A. Shaw, Guy's; N. Smith, St. Bart's; N. R. Smith, St. Thomas's; R. W. Smith, St. George's; L. V. Snowman, St. Mary's; K. H. Southall, Univ. Coll.; R. H. Stanbridge, London; E. G. Steeler, St. George's; G. G. Stewart, St. Bart's; J. D. M. Stewart, Cambridge and St. Bart's; R. V. Storer, Adelaide; F. O. T. Strange, King's Coll.; Viva E. K. Stuart, St. Mary's; Margaret Swete, Royal Free; H. C. C. Taylor, Guy's; H. A. Thomas, Liverpool; G. L. Thompson, Cambridge and London; J. H. G. Thompson, St. Thomas's; G. K.

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SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—R. Caplan, Glasgow; and L. A. Daly, St. Bart's Hosp.

Medicine.—W. E. Farnham, Birmingham; B. Hart, Sheffield; L. D. A. Hussey, King's Coll. Hosp.; and W. J. Jameson, Albany Med. Coll., New York.

Forensic Medicine.—B. Hart, Sheffield; L. D. A. Hussey, King's Coll. Hosp.; W. J. Jameson, Albany Med. Coll., New York; I. Lipman, Westminster Hosp.; and S. Thompson, Leeds.

Midwifery.—C. M. John, Madras and Royal Free Hosp.; I. Lipman, Westminster Hosp.; M. McW. Lopez, Univ. Coll. Hosp. and Bristol; H. MacLachlan, Guy's Hosp.; O. Sinanides, Athens; S. Thompson, Leeds; and R. A. Walker, St. Thomas's Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: L. A. Daly, L. D. A. Hussey, M. McW. Lopez, and R. A. Walker.

THE Mackenzie-Davidson Memorial Lecture will be delivered by Prof. A. W. George, of Boston, Mass., on Thursday, May 17th, at 5.30 P.M., in the Barnes Hall of the Royal Society of Medicine. Dr. George will take as his subject the Pathological Gall-Bladder.

MEDICO-LEGAL SOCIETY.—A meeting will be held on May 15th, at 8.30 P.M., at 11, Chandos-street, Cavendish-square, London, W. 1. A paper will be read by Mr. A. H. Trevor on the Mental Treatment Bill, 1923, and will be followed by a discussion.

SOCIETY FOR CONSTRUCTIVE BIRTH CONTROL AND RACIAL PROGRESS.—A meeting will be held on May 16th, at 8 P.M., at Essex Hall, Strand, London, W.C. Earl Russell will give a lecture on Progress and the Law, to be followed by a discussion.

GLASGOW UNIVERSITY CLUB, LONDON.—The summer dinner will be held at the Trocadero Restaurant, London, W., on Friday, June 1st, at 7.30 P.M., when the Lord Rector, Lord Birkenhead, will preside. Any Glasgow University men who, though not members of the club, would like to attend are invited to communicate, as soon as possible, with the hon. secretaries, 1, Harley-place, N.W. 1.

ABERDEEN UNIVERSITY CLUB, LONDON.—The sixty-ninth half-yearly dinner will be held at Gatti's Restaurant, London, W.C., on May 17th at 7.30 P.M., Prof. J. Arthur Thomson in the chair. Past or present graduates of either sex desiring to be present are asked to communicate with the Secretary, Dr. W. A. Milligan, 11, Upper Brook-street, London, W. 1.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The next quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland will take place on May 24th at 11, Chandos-street, Cavendish-square, London, W., under the presidency of Prof. G. M. Robertson. Dr. C. K. Clarke, of Toronto, will deliver the Fourth Maudsley Lecture at 3 P.M. at the house of the Royal Society of Medicine, 1, Wimpole-street, London, W. It is proposed to hold a dinner at the Langham Hotel, Portland-place, London, W., on the evening of May 24th, in honour of Dr. Clarke. Members are asked to write to the General Secretary, Dr. R. Worth, Springfield Mental Hospital, London, S.W. 17, stating the number of tickets they require. The annual meeting will take place in London between July 9th and 13th.

The Gaskell Prize and Medal (value £30) was founded in 1887, to honour the memory of the late Mr. Samuel Gaskell, F.R.C.S., at one time medical superintendent of the Lancaster County Lunatic Asylum, Lancaster, and subsequently for 17 years a Commissioner in Lunacy. The prize is given annually to that assistant medical officer who shall most distinguish himself in an examination held in July. Candidates must produce evidence: (a) Of having attained the age of 23; (b) of having been qualified medical officers in one or more asylums for at least two years; (c) of possessing the certificate in Psychological Medicine of the Medico-Psychological Association of Great Britain and Ireland. Candidates will be examined in: psychology; healthy and morbid histology of the brain and spinal cord; the diagnosis, prognosis, pathology, treatment, and legal relations of mental disorders; clinical cases with commentaries. Fourteen days notice to the registrar is required.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—An Emeritus lecture will be delivered by Sir John Bland-Sutton, F.R.C.S., on June 5th, at 3 P.M., in the Medical School, on the Choroid Plexuses and Ventricles of the Brain as a Secreting Organ.

MANCHESTER DENTAL HOSPITAL.—At the annual meeting it was stated that during the year the attendances of patients increased by 6000, or roughly 20 per cent. The amount contributed by the public in subscriptions was only £220, against an expenditure of £2700. The loss on the year's work amounted to £1000, and the committee are now faced with a deficit on revenue and building fund approaching £6000.

WHOOPIING-COUGH IN MANCHESTER.—Whooping-cough and measles appear to be slightly on the increase in Manchester. In the week ending Saturday, April 28th, the new cases of whooping-cough numbered 123 and the deaths 10; new cases of measles, 128, with 3 deaths. Pneumonia also was slightly on the increase—89 new cases and 45 deaths.

FEDERATION OF MEDICAL AND ALLIED SERVICES.—The annual dinner of the Federation has been postponed from May 23rd to Tuesday, May 29th, to suit the convenience of the Rt. Hon. N. Chamberlain, M.P., Minister of Health, who will be the chief guest, and that of several prominent Members who will be away during the Whitsun Parliamentary recess. The dinner will take place at 7.15 P.M. at the Langham Hotel, when it is hoped that members will make every endeavour to support the chairman, Sir Berkeley Moynihan, by their presence and take the opportunity of meeting those actively engaged in the work. The price of tickets is 12s. 6d., exclusive of wine, and communications should be made to Lieut.-Colonel N. Howard Mummery, medical director.

BIRMINGHAM AND MIDLAND SKIN AND URINARY HOSPITAL.—The annual report for 1922 contains a statement by the Medical Committee indicating the value of Erlangen deep-therapy for the treatment of cancer and other forms of malignancy. Illustrative cases are given. Among non-malignant conditions which have reacted favourably are fibroid tumour of the uterus, Hodgkin's disease, and keloid, while in lupus the treatment does not seem to have yielded better results than those obtained by ordinary X ray treatment. In the in-patient department 377 patients stayed an average of 19 days each, and one death occurred during the year; in 1921 the number of cases was 212, and the average stay 32 days. 6933 cases were seen in the out-patient department, as compared with 7719 in 1921. The total ordinary income was £7822 and the expenditure £8903.

THE LATE DR. ATLEE HUNT.—The death is announced on May 6th of Dr. Edgar Atlee Hunt. He was in his seventieth year and was living in Colchester where he had been in practice for a great number of years, remaining on his retirement from practice consulting surgeon to the Essex and Colchester Hospital and to the Royal Eastern Counties Asylum, a branch of his work in which he took particular interest. Dr. Hunt, who was educated at Uppingham and St. George's Hospital, was an excellent example of the competent and all-round general practitioner who keeps himself abreast alike of scientific work and social developments. Before starting practice in Colchester he had been resident obstetrician at St. George's Hospital. In his youth he was a prominent football player and could have had his cap for England, but circumstances prevented acceptance of the offer.

LONDON TEMPERANCE HOSPITAL.¹—The fiftieth annual report of this hospital, which was presented on March 28th, describes the year 1922 as one of unusual difficulty and anxiety. Nevertheless much-needed improvements have been effected in the post-mortem and out-patient departments, more than £2000 having been outlaid thereon, along with the cost of painting and cleaning. A Dean's diaspore has been fitted up in the X ray department and new equipment provided in the massage department. Happily the cost of provisions has been falling, while payments from patients have materially increased. The number of in-patients treated during the year amounted to 1059, against 1425 for 1921, the decrease being accounted for by two months' closure of the in-patient department in the summer, which had also the effect of raising the average total cost per in-patient to £14 7s. 1d. from £11 7s. 9d. in 1921. The deficit was reduced from nearly £8000 to £728 in the course of the year, chiefly owing to a large legacy. The building of the new nurses' home was put in hand, and an extensive building scheme, to include a new secretary's department, kitchen, and operation department still needs a sum of £20,000 before it can be completed free of debt. The Band of Hope Union is co-operating this year in a novel scheme for collecting money.

¹ We regret that a report which appeared under this heading last week referred to another hospital.

MEDICAL SOCIETY OF LONDON: ANNIVERSARY DINNER.—The 150th anniversary dinner of the Medical Society of London will be held at the Hyde Park Hotel (entrance through the Grill Room) on Tuesday, May 15th, when H.R.H. the Prince of Wales will be the principal guest. The toast of "Medicine and the Medical Society of London" will be proposed by the Right Hon. David Lloyd George and responded to by Lord Dawson, the President. The toast of the "Sister Professions and the Guests" will be proposed by Sir John Bland-Sutton, and responded to by the Lord Chief Justice, Lord Hewart, and by the Right Hon. Neville Chamberlain, Minister of Health. The President will receive the Fellows and their guests at 7.30 P.M. They are requested to take their places at the dinner tables at 7.45 P.M. in order that the audience may be seated before the arrival of the Prince. It is suggested that the interval might be utilised in ordering such wines as are wished for. Amongst the guests will be: Lord Justice Atkin, Viscount Astor, Sir Clifford Allbutt, Prof. Angus, Sir Anthony Bowlby, Dr. Hubert Bond, Lord Burnham, the Bishop of Birmingham, Prof. Blair Bell, Mr. A. H. Burgess, Dr. Arnold Chaplin, Sir E. Cooper Perry, the Earl of Donoughmore, Sir Crisp English, Mr. Elliott (Lettsom family), Sir Walter Fletcher, Dr. Fothergill (Fothergill family), Sir John Goodwin, Prof. E. W. Hey Groves, Prof. A. W. George (Boston), Sir Archibald Garrod, Sir William Hamer, Sir William Hale-White, Mr. Patrick Hastings, K.C., Sir Edward Marshall Hall, K.C., Sir Robert Hadfield, Prof. F. Gowland Hopkins, Sir Robert Jones, Dr. Robert Knox, Lord Kenyon, Sir William Lister, Sir William Leishman, Sir John Lynn-Thomas, Dr. F. N. Kay Menzies, Sir William Macewen, Prof. R. Muir, Prof. J. Marnock, Sir George Newman, Sir William Orpen, Sir Arthur Pinero, Hon. Sir Charles Parsons, Sir Milsom Rees, Prof. G. M. Robertson, Sir Arthur Robinson, Lord Riddell, Sir Squire Sprigge, Sir Arthur Stanley, Sir Harold Stiles, Prof. W. S. Thayer (Johns Hopkins), Mr. H. J. Waring, Sir Aston Webb, Sir W. de C. Wheeler, and Sir Alfred Yarrow.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—A deputation from the College, consisting of Sir William I. de C. Wheeler, president; Mr. R. C. B. Maunsell, vice-president; Sir Lambert Ormsby, secretary; Sir Thomas Myles, Sir Arthur Chance, Sir Conway Dwyer, and Mr. Alfred Miller, registrar, waited on the Governor-General of the Free State last week for the purpose of presenting an address of welcome. The address included an assurance that the services of the College would on all occasions be placed loyally and wholeheartedly at the disposal of the Government of the Irish Free State wherever questions arose affecting the public health or the welfare of the people. The Governor-General, in his reply, dwelt on the esteem in which Irish surgeons were held for skill, originality, and courage. The members of the deputation afterwards had luncheon with the Governor-General.

PARIS POST-GRADUATE LECTURES.—*Hôpital Trousseau.*—Ten lectures on Clinical Treatment of Non-Tuberculous Affections of the Bones in Children will be given by Dr. Hallopeau, surgeon to the hospital, from July 2nd to 13th. The treatments discussed will be those of fractures of arm, fractures of leg, acute osteomyelitis, congenital club-foot, scoliosis, acquired deformities (flat-foot, hallux valgus, torticollis, &c.), sequelæ of infantile paralysis, flail joints and pseudoarthrosis, ankylosis, and congenital luxation. Full particulars on application to the hospital, Rue Michel Bizot, Paris.—*Hôpital Maritime de Berck:* The above course will be followed by a course of 12 lectures on Tuberculosis of the Bones, Joints, and Glands, and the Elements of Practical Orthopaedics, by Drs. Sorrel, Andrieu, Tridon, Mozer, and Parin, from July 16th to 29th. The mornings will be devoted to practical demonstrations, and lectures will be held in the afternoons. The subjects will be Pott's disease; coxalgia; tuberculosis of the knee-joint; tuberculous osteitis and osteo-arthritis of the foot; tuberculous of the shoulder, elbow, and wrist; spina ventosa and cold abscess of soft parts; laboratory and radiographic diagnosis: non-tuberculous osteitis and osteo-arthritis; chronic adenitis; rachitism and scoliosis; congenital luxation of the hip. Full particulars on application to Dr. Parin, at the hospital, Berck-Plage.

NORTH WALSHAM MEMORIAL HOSPITAL.—In January, 1919, it was decided that the war memorial of the town should take the form of a cottage hospital, and the foundation-stone was actually laid in the latter part of that year. On April 23rd last a public meeting was held to receive the report of the committee which was presented by Dr. C. H. W. Page, who stated that the plans and architect for the proposed hospital had been approved, and the committee were of opinion that they were now financially justified in building. The total available resources were £7108, £380 of which represented the value of land, apparatus, and

furniture, leaving a balance of £6728. Approximately £100 per annum in annual subscriptions had been promised. The architect had stated that the estimated cost of erecting the building, including everything except actual furniture and architect's fees, was £3500. The hospital was planned to contain three male and three female beds, two private rooms containing one bed each, an operating room, and the necessary administrative offices. Dr. Page stated that a bed in the Norfolk and Norwich Hospital cost £160 per annum, whereas it was estimated that a bed in the proposed cottage hospital would only cost about £79. Last year there were 60 cases sent from North Walsham to the Norfolk and Norwich Hospital. Most of them could have been dealt with in a cottage hospital, and it was well known that there was a great shortage of beds in the Norfolk and Norwich Hospital. Sir Hamilton Ballance, one of the surgeons to that institution, had expressed himself as favourable to the scheme. The Secretary of the North Walsham Branch Saturday and Sunday Fund said that they now had 700 members and that the proposed local hospital would receive considerable help from the fund. All local workmen were in favour of the proposed hospital. It was decided that the work should be proceeded with.

ROYAL INSTITUTION.—At a general monthly meeting held on May 7th Sir J. J. Thomson was elected honorary professor of natural philosophy and Sir Ernest Rutherford professor of natural philosophy. It was announced that the following, among others, had been nominated as Vice-Presidents for the ensuing year: Dr. Mitchell Bruce, Sir James Crichton-Browne (treasurer), and Sir Arthur Keith (secretary).

In connexion with the first annual joint meeting of the Röntgen Society and the Electro-Therapeutic Section of the Royal Society of Medicine, a dinner will be held at the Langham Hotel on Thursday, May 17th, at 8 P.M. (price 10s. 6d., exclusive of wine, payable at the table). Members who wish to be present are asked to notify the secretary of the Electro-Therapeutic Section of the R.S.M., 1, Wimpole-street, London, W. 1.

THE LATE MR. CHARLES KILLICK.—The medical profession, not only of Bradford but also of a much wider area, has to deplore the sudden and tragic death on April 27th, at the age of 48, of Mr. Charles Killick, M.D. Camb., F.R.C.S. Eng., hon. ophthalmic surgeon to Bradford Royal Infirmary. Apparently in normal health, he infected his finger while examining an ophthalmic patient, and died of septicæmia within nine days. Born near Bradford, a member of a well-known professional family, he received his medical education at Cambridge University, and after graduating with honours in the Natural Science Tripos, he gained a University Scholarship at St. Mary's Hospital, Paddington. His bent, ophthalmological almost from the first, soon led him to take up that branch of surgery, and he spent many years in Maidstone in ophthalmic practice and as hon. surgeon to the Kent County Ophthalmic Hospital. In spite of his success there, he felt that Kent was not sufficiently bracing for his children and he returned to Bradford, becoming hon. ophthalmic surgeon to the Royal Eye and Ear Hospital. He was a life member of the Soc. Opht. de France, a member of the Council of the Ophthalmic Section of the Royal Society of Medicine, and a frequent contributor to the literature of his subject. His chief hobby was the translation of French and other foreign ophthalmic works, and he greatly preferred literary and scientific studies to outdoor recreation. Of recent years he became interested in Freemasonry, and obtained in a very short time an astonishing mastery of its ritual. His geniality and mental alertness as well as his great medical abilities made him universally popular in Bradford, where his early death is felt as a severe loss to the profession. Sympathy is extended to his widow and young children.

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THURSDAY, MAY 3RD.

MENTAL TREATMENT BILL.

The EARL OF ONSLOW, in moving the second reading of the Mental Treatment Bill, said that public attention had recently been drawn to the question of the lunacy law and administration, and early last year a conference, consisting of the chairmen of the visiting committees, medical superintendents of mental hospitals, and a number of specialists, was arranged by the Board of Control. The conference decided to ask the Government to obtain legislation permitting treatment without certification in institutions approved by the Board of Control. At present the lunacy laws dealt, firstly, with the detention of lunatics, so as to prevent them from injuring themselves or other people; secondly, they were devised to secure humane and proper treatment of lunatics in mental hospitals; and thirdly, to secure their property against fraud or misappropriation. They did not deal exhaustively with cure, the importance of which was realised when it was known that they had now some 120,000 certified lunatics in 172 institutions costing £8,000,000 a year. To these were added 22,000 fresh cases every year, of whom about 32 per cent. were discharged as recovered. In addition, there were 150,000 persons who were feeble-minded and also a percentage of the population (some people said as high as 10 per cent.) who were dull and backward mentally. Lastly, they had the cases of neurasthenia and psycho-neurosis. All this was a serious drain upon the capacity of the nation, and modern science told them that much of it was preventable by careful watching and early treatment. A distinguished alienist told him the other day that his practice was scarcely at all with certified patients; it was mainly with young people in whom signs or suspected signs of mental disorder were detected. As the law stood at present it was not possible or, at least, very difficult to provide for the treatment of incipient mental disease without certification, against which there was very naturally and very properly a strong feeling. The chief purpose of the Bill was to provide that a patient suffering from incipient mental disorder might be received for treatment without certification. This system had been adopted for many years in Scotland, while in this country, under the Act of 1890, voluntary boarders had been allowed in private licensed houses. Everyone recognised how enormously important it was that no power should be given and no loophole opened for the improper use of provisions such as those contained in the Bill. Among the safeguards which they had introduced, first of all the institution must be one which was approved by the Board of Control and under frequent inspection by them. Secondly, there must be a recommendation from two doctors. And thirdly, no patient could be admitted unless it was at his own voluntary request.

Persons Incapable of Volition.

But many cases of incipient mental disease were incapable of volition, and such cases very often, if treated properly, were capable of complete cure. In such cases as these before they could be admitted the recommendation of the two doctors had to be countersigned by a justice of the peace or a minister of religion personally acquainted with the patient, but not related to him, and the person signing the document must have seen the patient and satisfied himself that he was incapable of volition or voluntary action at the time. A similar procedure was required in the case of minors and, of course, in addition the consent of the parent or guardian must be obtained for the admission of a minor into one of these institutions. One of the doctors, at least, must be a medical man approved by the Board of Control.

The patient could come into the institution at first for a maximum period of six months, which might be extended for another maximum period of six months, being one year in all. He could not undergo this treatment for more than a year. If he was not cured after the year was over, the ordinary provisions of the existing Acts would apply, but at any time during the year he might leave the institution by giving 48 hours' notice, or he might be discharged by the superintendent, or by order of the Board of Control. It was provided in Clause 1 (3) for county and borough councils acting through their visiting committees, to receive patients into their own institutions. In Clause 4 it was also provided that visiting committees should be able to arrange for general hospitals to receive patients of this kind and to work in conjunction with visiting committees. If this could be done great advantage to patients might ensue by getting them away from contact with certified cases, and it would enable all the resources of medicine, other than those provided especially for mental disease, to be at the disposal of the patient. The patient, of course, could also be received in registered hospitals, which were mostly charitable foundations.

or licensed houses which were otherwise known as private asylums.

Out-patient Treatment and After-care.

Another provision of the Bill enabled visiting committees to provide out-patient treatment for persons suffering from mental disorder. They would be at liberty to do this either in institutions under their own control or by arranging for it to be done in general hospitals in the same way as they would be empowered to arrange for in-patients. An outdoor clinic for nervous and mental cases had been established at the Radcliffe Hospital, Oxford, with the greatest possible success. No difference was made between nervous and mental patients. It had been found that patients and their friends were much more ready to come to a clinic of this kind than to a separate mental hospital, and altogether the results had been justified.

The Bill also provided that visiting committees might make provision for the after-care of patients. It had been found that many patients who were discharged as cured were apt to break down again unless they were carefully and kindly looked after during the months following their discharge. This question of after-care, therefore, was of the utmost importance if they wished to make permanent the cures effected in mental hospitals; and it was to be hoped that the visiting committee would give their most careful attention to the provision of this service.

Unknown Causes of Mental Disease.

In spite of the progress in knowledge of mental disease during the last quarter of a century, it was still an unfortunate fact that many of the causes of mental illness were largely unknown at present. If mental disease could be systematically explored they might assume that much progress might be made in the prevention and cure of this disease. In Clause 2, Subsection (5), provision was made for more systematic research and more opportunity was given for the expenditure of public money upon that research. Co-ordination—a most important point—was provided for by requiring that the researches should be undertaken with the approval of the Board of Control. In this measure they endeavoured to extend the functions of the visiting committees to enable them to carry out their present duty more efficiently and also to cope with the new duties which would be placed upon them by this Bill. Firstly, they provided that a proportion, not exceeding one-third, might be persons who were not members of the Council. This was a principle which had been adopted in regard to education committees, maternity and child welfare committees, and so forth, and it was designed to enable the Committee to co-opt expert opinion among their members, and also to get the services of people who might not be members of the Council, but who were willing to give their whole time or a large part of their time to the work of the Committee. Two at least of each visiting committee would be women, and the committees were given power to carry out their duties jointly with other authorities. The expenses of visiting committees were to be defrayed by the local authorities within the county or borough within whose area they operated. The maintenance of cases which came in for treatment for incipient disease had no connexion with the Poor-law. There was no pauper rate. The local authority could either treat them or might make arrangements for their maintenance, the cost falling upon the general fund and not on the guardians of the union in which the patient happened to reside.

The Question of Inspection.

The Mental Deficiency Act of 1913 greatly increased the amount of visiting and raised the number of Commissioners to 11. At present there were seven Commissioners, one a woman who, being neither a lawyer nor a doctor, could not pay statutory visits. The existing staff could not cope with the growing work and, of course, this Bill would probably throw extra inspection upon the Board. It was quite out of the question to reduce the number of statutory visits, but a great many of these statutory visits and local work which now had to be done by Commissioners could, in the view of the Ministry of Health, be efficiently done by inspectors if the law allowed, and the most economical and practical method would seem to be to limit the number of Commissioners to eight and allow the visits and local work to be carried out by inspectors instead of Commissioners, where this can properly be done. This was provided for in Clause 3, Subsection (2). That, in the view of the Ministry of Health, was the best method for providing for the proper inspection which would be required under this Act.

The Bill Discussed.

LORD BUCKMASTER welcomed the Bill, but said he thought that under proper safeguards greater power should be given by the measure for the treatment of these patients. To his mind it was an appalling fact that the reproduction of our population was taking place in inverse ratio to the value of the people who were being produced. He thought the time had come when the whole question of the perpetuation of an utterly unfit, weak-minded, and insane should be the

subject of full investigation, and he wished the Government had had the courage before they introduced the Bill to appoint a Commission to consider the whole question.

THE BISHOP OF WORCESTER said that the present fear of being sent to an asylum would disappear when people realised that these hospitals were places of cure. The medical staff of these institutions were doing a great work, and they had done nothing like what they ought to do to protect those who were giving their lives to the State in this work. Whatever the defects of detail of the measure, their lordships would thankfully accept it as a rather wonderful instalment of fresh hope for those who had been suffering in these sad ways.

EARL RUSSELL congratulated the Government on the introduction of the measure. Practically everyone, he said, who had studied the question would favour the sterilisation of the insane in view of the hereditary and fairly prolific character of these cases. He urged that the 48 hours' provision in Clause 5 should be extended by making a patient's discharge subject to an order of the Board of Control.

THE EARL OF ONSLOW said that the introduction of compulsion in retaining a patient in an institution longer than 48 hours would be a considerable step beyond what was proposed in the Bill, and he could not give any indication that the Government would adopt it if it came up for consideration in Committee.

The Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, MAY 2ND.

Naval and Military Hospitals at Hong-Kong.

MR. GERSHOM STEWART asked the First Lord of the Admiralty whether it would be possible to effect an economy in naval expenditure at Hong-Kong by amalgamating the naval and military hospitals, and, in view of the fact that the naval hospital was very near to the reclamation being carried out in the harbour and of the very high price of land ruling in the colony, if he would consider the advisability of disposing of the site of the present naval hospital, for which a large sum of money could be obtained.—MR. AMERY replied: This question was carefully considered by the Board of Admiralty 12 months ago, and later came under the review of the committee appointed by the late Government to consider the amalgamation of services common to the Navy, Army, and Air Force. The conclusion arrived at was that there would not be a sufficient margin of accommodation if amalgamation were to take place. This would especially be the case as regards officers, the military hospital at Hong-Kong having only six equipped beds for officers.

Village Settlements for Tuberculous ex-Service Men.

COLONEL SIR ARTHUR HOLBROOK asked the Minister of Health whether he would take some action in furtherance of village settlement schemes for tuberculous ex-Service men, as recommended by the Barlow Report of 1918, by the establishment of additional settlements; and whether it was now contemplated to complete the village settlements at Papworth Hall, Cambridgeshire, and Barrowmore, in Cheshire.—MR. NEVILLE CHAMBERLAIN replied: I have recently discussed this question with representatives of the British Legion at a meeting at which my right hon. friend the Minister of Pensions was also present. I am endeavouring to arrange for a personal visit to the settlement at Papworth and also to that at Preston Hall, Kent, during the Whitsun recess, and I hope to be able to arrive at a final decision on the whole question very soon afterwards.

Overcrowding in Poplar.

MR. LANSBURY asked the Minister of Health whether he had received a communication from the medical officer of health for the Borough of Poplar enclosing a statement of 10 typical cases of serious overcrowding in the borough and specially drawing attention to the fact that in every case a person suffering from tuberculosis was living and sleeping with the men, women, and children existing under these conditions; whether he was aware that the medical officer of health for Poplar, on the instructions of the health committee, had on many occasions made representations to Ministers of Health urging that the law should be put into operation for clearing the slum areas in the borough, and that the official reply of the Ministry had always been that the local and national finances did not permit of these unhealthy areas being dealt with; and would he give instructions to one of the officers of his department to proceed to Poplar and advise the medical officer of health and the borough council what steps they should take in order to efficiently deal with the prevailing conditions, which daily became more deplorable.—MR. NEVILLE CHAMBERLAIN replied: The answer to the first question is in the affirmative. The answer to the second question is that I am not, as at present advised, aware of official correspondence between the Ministry of Health and the medical officer of health of the character

mentioned or of such official statements as are mentioned. The answer to the third is that the nature of the action which can be taken in such regrettable conditions, short of rehousing the people, should be within the knowledge of the medical officer of health. As regards rehousing, I may add that it is for the Borough Council of Poplar to approach the L.C.C. with a view to proper consideration of the claim of the borough for inclusion in the general scheme of slum improvement in London which is under consideration and for which State assistance would be forthcoming under the Housing Bill.

Milk and Dairies (Amendment) Act.

Mr. HANNON asked the Minister of Health whether he was aware that the uncertainty as to the date on which the regulations under the Milk and Dairies (Amendment) Act will come into operation was causing perturbation amongst those interested in the improvement of the conditions of the national milk-supply, and that the majority of dairymen were postponing action until such time as the intentions of the Ministry of Health were known; and whether he intended to fix July 1st, 1923, as the date on which the regulations would come into force.—Mr. NEVILLE CHAMBERLAIN replied: I assume that my hon. friend is referring to the Milk (Special Designations) Order, 1922, which came into operation on Jan. 1st last. In accordance with the promise which I gave on March 13th to my hon. friend the Member for the Stone Division, the Order has been revised in certain matters of detail and I hope to be in a position to issue the revised Order at an early date. It is proposed that the new Order shall come into operation on July 1st next.

Approved Societies' Funds and Medical Benefit.

Sir KINGSLEY WOOD asked the Minister of Health whether the Government actuary notified Sir Eric Geddes's Committee that he could not safely advise that the funds of approved societies could bear any further burden in respect of increased payments on account of medical benefit without an increase of contributions; and whether he had given any further advice on this subject.—Mr. NEVILLE CHAMBERLAIN replied: The advice given by the Government actuary to the Committee on National Expenditure in regard to the matter referred to by the hon. Member is contained in Appendix B. to the first report of that committee (Cmd. 1581), page 139. The Government actuary gave further advice on the subject in his report on the Financial Provisions of the National Health Insurance Act, 1922.

A Case of Dementia Præcox.

Captain ERSKINE-BOLST asked the Minister of Pensions whether he was aware that John Ernest Taylor, M.M., late 8th City of London Post Office Rifles, was at present in the mental hospital, Claybury, suffering from shell-shock; that when he, in a fit of depression, tore a bed sheet, he was placed in a small shuttered and darkened room with several lunatics, without sufficient clothing; that, when visited by his parents on April 8th and 9th, he was shivering and had developed a chill; and that the mother was informed on April 22nd by the doctor that her son had been vomiting and was not expected to recover; and whether he would take steps to have this patient removed to a shell-shock or convalescent home and institute inquiries into the conduct of the officials concerned at Claybury.—Lord EUSTACE PERCY replied: The Board of Control have seen the medical superintendent of Claybury and inquired fully into the circumstances of this case. The patient, James (not John) Ernest Taylor, is suffering from dementia præcox. He is at times violently impulsive and destructive. On April 5th he destroyed a sheet and pillow cases and was placed in a side room which, for his own protection, had the shutters of the window closed. It is not a fact that other patients were in this side room with him, or that he was without sufficient clothing. The medical officer who has had charge of the case since December states that the patient has never suffered from a chill while under his care. The patient vomited on April 23rd and was seen by the medical officer, who prescribed for him, and on the following day he had recovered from this attack. Mrs. Taylor, who visited her son on April 23rd, was informed that his mental prospects were poor, not that his general health was critical; he is, in fact, physically a strong and healthy man. My right hon. friend is advised that the patient is not at present a suitable case to be treated outside a mental hospital. During his residence at Claybury he has attacked and seriously injured three attendants, one of whom was off duty for six weeks.

THURSDAY, MAY 3RD.

Reconsideration of Conditional Assessments.

Mr. BROTHERTON asked the Minister of Pensions what provision was made in the case of men suffering from bronchitis and/or asthma who appealed on the grounds that they were under-assessed; and whether men suffering from these disabilities, on home treatment without allowances, could have the same privilege extended to them as was given to the men on in-patient treatment with allowances—i.e.,

that they might be boarded when ill and not, as at present, have to wait until they had recovered from the attack of sickness that incapacitated them from work before the appeal to the medical appeal board was considered.—Major TRYON replied: The right of application for reconsideration of a conditional assessment applies equally to all disabilities, and the instructions do not, as the hon. Member appears to think, preclude applications of this nature being dealt with when the man is undergoing home treatment without allowances.

MONDAY, MAY 7TH.

Medical Appointments in Cumberland.

Mr. GAVAN-DUFFY asked the Minister of Health if, before giving his sanction to the appointment of a medical officer of health for the urban district area of Frizington, Cumberland, take into serious consideration the recommendation of the county of Cumberland medical officer of health that several of the small urban areas should, in the interest of efficiency and the proper administration of the laws of public health, be amalgamated under one full-time medical officer instead of the present system of appointing officers who could do no effective work as medical officers of health without sacrificing the interests of their panel patients.—Lord EUSTACE PERCY replied: My right hon. friend has received no formal representation for the issue of an Order to combine this with other districts for the purpose of appointing a whole-time officer. He has, however, tried to arrange for such an appointment to be made by agreement. As these efforts have not been successful, he has not thought it practicable to object to the district council's proposals to appoint a part-time officer, who has, however, been required to give a written undertaking to resign the appointment in the event of a whole-time officer being appointed. My right hon. friend cannot accept the suggestion that no effective work can be done by part-time medical officers of health without prejudicing the interests of their panel (or other) patients.

Education of Mentally and Physically Defective Children.

Mr. ROBERT MORRISON asked the President of the Board of Education how many local educational authorities made special school accommodation for mentally and physically defective children during 1922; how many authorities were permitted to open new special schools; how many were refused; and, of those refused, on what grounds.—Lord EUSTACE PERCY replied: During the year ending Dec. 31st, 1922, 90 local education authorities in England and Wales were providing special school accommodation for mentally or physically defective children. Five authorities were allowed, and seven were, on financial grounds, refused permission to open new schools.

Water Supplies in Rural Districts.

Colonel Sir ARTHUR HOLBROOK asked the Minister of Health whether he would consider, as one method of relief works for the unemployed, the supply of water to rural districts in which at present water had to be brought from a distance, thus ensuring an ample supply of pure water, which was necessary for the preservation of health.—Lord EUSTACE PERCY replied: Schemes of this kind submitted by local authorities will be considered if the degree of local unemployment is sufficient to warrant this course, and if the proposals are practicable from an engineering and financial point of view.

TUESDAY, MAY 8TH.

Preservatives in Food.

Mr. ALBERT BENNETT asked the Minister of Health if his attention had been called to the representations of county and borough councils, based on the advice of their respective medical officers, that a limit should be placed on the use of preservatives in food; and whether he would appoint a committee of investigation into the question, seeing that for many years the local authorities had been urging that action should be taken.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. I have already taken preliminary steps to appoint a small committee to inquire into the general question of the use of preservatives and colouring matters in food.

Appointments.

FYFE, G. M., M.B., Ch.B. Aberd., has been appointed Junior V.D. Officer at the Aberdeen Royal Infirmary.
PIATROWSKI, J. GEORGES, L.R.C.P., M.R.C.S., Second Resident Medical Officer at the French Hospital.
REYNOLDS, RUSSELL J., M.B., B.S. Lond., Honorary Adviser in Radiology to the Ministry of Pensions.
TATE, J., M.R.C.S., L.R.C.P. Lond., D.P.H., Medical Officer of Health for the Administrative County of Middlesex.
TUXFORD, R., M.R.C.S., L.R.C.P. Lond., to be one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 17, Boston, Holbeach, Sleaford, &c.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Senior Asst. P. £400 to £500.
Barking Town Urban District Council.—Female Asst. M.O.H. and Asst. School M.O. £500.
Birkenhead and Wirral Children's Hospital.—H.S. £100.
Birmingham and Midland Ear and Throat Hospital.—Jun. H.S. £200.
Boole Borough Hospital.—Jun. H.S. £150.
Bradford Royal Eye and Ear Hospital.—Hon. Ophth. S.
Calcutta, School of Tropical Medicine and Hygiene.—Research Worker. Rs.1750.
Cambridge, Addenbrooke's Hospital.—H.P. £130.
Cardiff, King Edward VII. Hospital.—Ophth. H.S. and Cas. O. Each £100.
Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—X Ray Officer.
Chester, Burnhwood Sanatorium.—Res. Med. Supt. £900.
Dreadnought Hospital, Greenwich, S.E.—H.S. £150.
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P., Two H.S.'s., and Obstet. Asst. Each £50.
Fareham, Hants, Knowle Mental Hospital.—Fourth Asst. M.O. £350.
General Lying-in Hospital, York-road, Lambeth, S.E.—Res. M.O. £100.
Gloucestershire Royal Infirmary.—Asst. S.
Great Yarmouth Hospital.—H.S. £150.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. £50.
King Edward VII. Sanatorium, Midhurst, Sussex.—Second Asst. M.O. £250.
Leeds, West Riding Asylum, Menston.—Fourth Asst. M.O. £400.
London County Mental Hospital Service.—Seventh Asst. M.O. £440.
London Jewish Hospital, Stepney Green, E.—Second Hon. Anaesthetist.
London Lock Hospital, 283, Harrow-road, W.—H.S. £200.
Llancaster, Cheshire County Mental Hospital, Parkside.—Locum Tenens A.M.O. £10 10s. weekly.
Middlessex County Council.—Deputy County M.O.H. £840.
Asst. M.O. £550.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Senior H.P. £150.
Newcastle-upon-Tyne Corporation.—Asst. M.O.H. £750.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Asst. Radiologist. £400.
Northamptonshire County Council Education Committee.—Asst. Sch. M.O. £500.
North Ronaldshay, Orkney.—Med. Pract. £400.
Portsmouth Workhouse Infirmary and Children's Home.—Second Asst. R.M.O. £300.
Royal College of Surgeons of England.—Professors and Lecturers.
Royal London Ophthalmic Hospital, City-road, E.C.—Ear, Nose, and Throat S.
Royal Northern Hospital, Holloway, N.—Cas. O. £150.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. and H.P. Each £100.
St. Bartholomew's Hospital Medical College.—Lecturer on Biology. £500.
Saint Pancras Dispensary, 39, Oakley-square, N.W.—Res. M.O. £225.
Sheffield Royal Infirmary.—H.S. for Ear, Nose, and Throat. £150.
South Shields County Borough Sanatorium.—Asst. Tub. O. £500.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.S. £100.
Wakefield City.—Asst. M.O.H. £550.
Wolverhampton and Staffordshire General Hospital.—Res. Cas. S. £250.
The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Bangor (Carnarvon).

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, May 15th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for election to the Fellowship. (Names already circulated.)

Wednesday, May 16th.

HISTORY OF MEDICINE: at 5 P.M.

Annual General Meeting:
Election of Officers and Council for 1923-24.

Papers:

Sir Frederick Smith: The Influence of the Medical Profession on the Development of Veterinary Knowledge in the Eighteenth Century.
Mr. E. J. Holmyard: Arabic Alchemy.

Thursday, May 17th.

DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)

Annual General Meeting:
Election of Officers and Council for 1923-24.
Cases will be shown.

ELECTRO-THERAPEUTICS: at 5.30 P.M.

First Annual Joint Meeting of the Section with the Röntgen Society:

The Mackenzie-Davidson Memorial Lecture will be given by Prof. A. W. George (Massachusetts General Hospital, Boston, U.S.A.) on the Pathological Gall-bladder.

There will be an exhibition of radiograms bearing on the subject of the lecture.

MEDICINE; SURGERY.

Members of these Sections are cordially invited to attend this Meeting.

The Meeting will be followed by a Dinner at the Langham Hotel at 8 P.M. The price of the Dinner (exclusive of wine) is 10s. 6d., payable at the table.

Friday, May 18th.

OTOLOGY: at 5 P.M. (Cases at 4.30 P.M.)

Annual General Meeting:
Election of Officers and Council for 1923-24.

4 P.M.

Demonstration by Mr. Richard Lake of an instrument for the deaf.

4.30 P.M.

Cases and Specimens will be shown by Dr. Dan McKenzie and others.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, May 14th.—8 P.M., Annual General Meeting. 8.30 P.M., Reception by the President. 9 P.M., Dr. J. Walter Carr: Annual Oration on Life and Problems in a Medical Utopia. To be followed by a Conversazione.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

TUESDAY, May 15th.—8.30 P.M., Paper by Mr. A. H. Trevor on the Mental Treatment Bill, 1923, to be followed by a Discussion.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, W.

THURSDAY, May 17th.—8.15 P.M., A Paper will be read on the Treatment of Refractory Cases of Amoebic Dysentery, by Dr. J. Graham Willmore, S.M.O., Tropical Section, Ministry of Pensions Hospital, Orpington, with a Note on Emetine Preparations for Rectal and Oral Use, by W. H. Martindale, Ph.D.

The Meeting will be preceded by a Demonstration from 7.45 P.M.—8.15 P.M., of certain drugs referred to in the Paper.

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester-square, W.C.

TUESDAY, May 15th.—4.30 P.M., Specimens and Clinical Cases. (Lupus Erythematosus, &c.) 5.15 P.M., Dr. W. Knowsley Sibley: Lupus Erythematosus and its Treatment. Fellows' Monthly Dinner, Cavour Restaurant, Leicester-square, at 6.30 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Demonstration of Clinical Cases at 3.30 P.M.

MONDAY, May 14th.—Dr. J. Browning Alexander: Medical.

TUESDAY.—Mr. Howell Evans: Surgical. (3 P.M.)

WEDNESDAY.—Mr. Norman B. Fleming: Eye Cases.

THURSDAY.—Mr. H. W. Carson: Surgical.

FRIDAY.—Dr. C. E. Sundell: Diseases of Children.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

TUESDAY, May 15th.—5.15 P.M., Dr. Millais Culpin: Dreams.

WEDNESDAY.—4.15 P.M., Dr. W. M. Feldman: Germinology.

FRIDAY.—5.15 P.M., Dr. Millais Culpin: Symptomatology.

Births, Marriages, and Deaths.

BIRTHS.

COFFIN.—On May 3rd, at 2, Meadow Close, Golders Green, N.W. 11, to Mr. and Mrs. Stephen Coffin—a son.
COVENTON.—On May 3rd, the wife of Dr. A. W. Duncan Coventon, The Chantry, Aylesbury, Bucks, of a son.
COX.—On May 5th, at Avenue-road, Highgate, the wife of Dr. Hedley Chave Cox, of a son.
HUR.—On April 28th, at 192A, West End Lane, London, N.W. 6, the wife of D. V. Giri, L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H. Lond., D.O. Oxon., of a son.
McCRAE AITKEN.—On May 2nd, at Park-street, W., the wife of D. McCrae Aitken, F.R.C.S., of a son.

MARRIAGES.

HOLMES—ROBINS.—On May 1st, at St. Andrew's, Hove, E. Arthur Holmes, M.R.C.S., to Betty May, elder daughter of Mr. and Mrs. Frank Robins, of Brunswick-place, Hove.

DEATHS.

DAVIES.—On May 2nd, at Blackheath, Langford George Davies, M.A., M.B., B.C. Camb., M.R.C.S., L.R.C.P. Lond., late R.A.M.C. and R.A.F., aged 42 years.
HUNT.—On May 6th, at Crouched Friars, Colchester, Edgar Atlee Hunt, F.R.C.S., J.P., aged 69 years.
B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, May 14th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 3 P.M., Mr. Simson: Diseases of Women.
 TUESDAY.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.
 WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 11 A.M., Mr. Simson: Gynaecological Demonstration. 2 P.M., Mr. Gibb: Eye Dept.
 THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. MacDonald: Genito-Urinary Dept. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.
 FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Dept. 2 P.M., Mr. Banks-Davis: Diseases of Throat, Nose, and Ear. 3 P.M., Mr. Sinclair: Surgical Out-patients.
 SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear.
 Daily 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M. In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, May 14th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Aspect of Nervous Disease, Clinical and Pathological: Dr. James Taylor.
 TUESDAY, May 15th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Cerebral Tumours: Dr. Risien Russell.
 THURSDAY, May 17th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Clinical Varieties of Paraplegia: Dr. Walshe.
 FRIDAY, May 18th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Treatment of Cerebral Tumour: Mr. Sargent.

COURSE OF LECTURES ON NEURO-PATHOLOGY.

MONDAY, May 14th.—12 noon, Cerebro-Spinal Fluid: Dr. J. Godwin Greenfield.

A COURSE OF 12 LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS and FRIDAYS if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the whole Course is £12 12s., including Anatomy and Physiology, but these Lectures may be taken separately for a fee of £4 4s. The fee for the Course without Anatomy and Physiology Lectures is £10 10s. Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, Marylebone, W. 1.

THURSDAY, May 17th.—5.30 P.M., Dr. R. O. Moon: Heart Disease in Childhood.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.

THURSDAY, May 17th.—4.30 P.M., Prof. F. G. Hopkins: An Oxidising Agent in Living Tissues.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.

TUESDAY, May 15th.—5 P.M., Prof. A. L. McIlroy: Toxæmias of Pregnancy.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, May 17th.—4 P.M., Dr. Nabarro: Syphilis in Infancy and Childhood.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

MONDAY, May 14th.—6 P.M., Dr. Eric Pritchard: Physiology and Pathology of the Digestive System.

TUESDAY.—8.45 P.M., Dr. Eric Pritchard: Principles of Infant Feeding.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, May 17th.—5 P.M., Mr. J. B. Banister: Some Difficulties in the Puerperium.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, May 15th.—4.15 P.M., Dr. A. H. Holmes: Massive Collapse of the Lung.

SALFORD ROYAL HOSPITAL.

THURSDAY, May 17th.—4.30 P.M., Dr. Bythell: The Bismuth Meal: with special reference to Gastroptosis.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).

THURSDAY, May 17th.—3.30 P.M., Mr. C. F. Walters: Modern Treatment of Stricture and Prostatic Cases.

Notes, Comments, and Abstracts.

SOME PROBLEMS IN THE LIGHTING OF PRINTING WORKS.

Abstract of a Paper read before the Illuminating Engineering Society on April 24th, 1923.

BY L. GASTER.

I MAY take as a starting-point a sentence in Mr. F. W. Goodenough's paper¹ read before this Society in 1912: "I doubt if there exists any industry in which good lighting has more effect on the successful running of the concern than is the case in the printing trade." The product of both journalists and printers is prepared exclusively for exhibition to the eye. An idea of the loss that may arise by inadequate lighting is afforded in a contribution by Mr. F. H. Bernhard to the *Electrical Review* (U.S.A.). In a large printing works it was found that after the conditions of illumination had been thoroughly modernised the general efficiency of work was improved by 25 per cent.²

Printers as a whole, and compositors especially, are probably above the average of workmen intellectually, working as they do continually with the eye and the brain as well as the hands. They are, therefore, more sensitive to working conditions and appreciative of their improvement. I understand that defects of eyesight are exceptionally frequent among compositors, which fact may be ascribed partly to work under inadequate lighting.

Value of a Well-Planned Scheme of Lighting.

In most sections of a works the aim should be to provide general illumination by lighting units of high candle-power, placed high up so as to be out of the range of view. A series of drop-lights terminating in lamps of small candle-power is inefficient, unsightly, and inconvenient. Nevertheless, the general lighting sometimes requires to be supplemented by a few local units, as many printing processes require lighting of this nature. In one respect the printing industry has an advantage over some other trades. Each machine has its allotted task and is invariably used for the same purpose. It is worth while, therefore, to scheme out suitable lighting, recognising that it should not require continual adjustment, as may happen in factories where the nature of the work and the duties required from machines change from time to time.

Although the procedure has recently been modified by the introduction of automatic type-setting machinery, the lighting of compositors' "frames" still forms an important problem. I have observed three main methods of lighting: (1) Unshaded or imperfectly shaded lamps placed over the centre line so as to illuminate the racks on either side; (2) lamps equipped with suitable reflectors used in the same way; and (3) general lighting from overhead lamps—e.g. semi-indirect lighting with sources situated between benches so that the light comes over the worker's shoulders. The first method cannot be recommended. The exposed filaments are troublesome to the eyes of the workers and the proportion of light reaching the frames is very small. But if the lamps are equipped with suitable reflectors and their distance above the top-line of the bench is suitably selected, it is possible by method (2) to obtain very good illumination on the actual inclined face of the bench. Some compositors still prefer local lighting of this description. It is, however, usually desirable to supplement this mode of lighting by general illumination from overhead sources: (a) In order to throw light on the drawers below the inclined face, which would otherwise be insufficiently illuminated; (b) to ensure adequate lighting of gangways between benches; and (c) to eliminate an undue contrast between the illuminated rack and the surroundings.

The alternative method of depending on overhead light is much more feasible with modern illuminants than with the low candle-power lamps of the past. It has the merit that the light comes from above and behind the worker and there is less likelihood of inconvenient reflection from the surface of the bench. In addition, the drawers receive a better illumination. Thus, in a recent installation of this kind it was found that the illumination on the racks was 6-8 foot-candles, and even drawers quite low down still received 1 foot-candle.

In the discussion before the Society in 1912 values in general ranging from 5-10 foot-candles (average) were recorded. In view of the fact that considerable variations in illumination at different points on a bench are often in evidence, it would seem that the average illumination whether provided by general or local lighting, should lie within these limits. In good modern installations 5 foot-

¹ *Illuminating Engineer*, 1912, v., 171.

² *Elec. Review*, U.S.A., August 24th, 1918.

andles is doubtless usual. But there are still many works where much lower values would be recorded.

Local Lighting.

The lighting of linotype or monotype composing machines, where manuscripts are "tapped out," is usually effected by adjustable local lights placed about 18 inches above the keys and screened on the side facing the worker. This is a process that needs strong local lighting, as the operator has not only to see the keys, but to distinguish the more or less illegible handwriting of the contributions he is dealing with. Such sources need very careful shading. Average values recorded by Mr. J. Eck for linotype machines were up to 5 foot-candles on the matrix box, 4.3 on the keyboard, and 4 on the copy. A recent test in a printing works by the author gave 4-8 foot-candles on the keyboard, 4-8 on the "copy," and 4 on the setting drum (measured vertically)—the latter being a particularly important spot in view of the small letters and numbers on the drum that have to be distinguished. It would appear that the illumination of the manuscript, at any rate, should not be less than 4-5 foot-candles, in view of the small type or imperfect handwriting that the operator frequently has to decipher.

Diffused Light.

In machine rooms it is obviously desirable that the surroundings should be light in colour and the illumination very fully diffused, so that all interstices in complicated machinery are clearly revealed. I would suggest that, in the interests of safety, the illumination at floor-level should not be less than 0.5 foot-candles, irrespective of the illumination provided for the actual work. On laying-on and taking-off tables, where sheets are placed and inspected, a value of about 5 foot-candles is desirable, and this value is exceeded in some well-lighted works recently visited. The point may be raised whether, for the examination of first sheets, general diffused lighting is sufficient. The printer, in judging the impressions of type and blocks, is guided very largely by small indentations in the paper, and it is possible that these could be revealed more fully by oblique unidirectional lighting. It might, therefore, be a good practice to supplement the general lighting by a local adjustable fitting, the position of which with regard to the paper could be altered according to the needs of the operator. In this department the importance of good lighting can hardly be overestimated. Any fault in the running of machinery is much more difficult to detect and remedy if the lighting is insufficient. The author has met cases in which constant breakdowns and exasperating delays were occurring in a badly-lighted room, but practically ceased when modern and adequate illumination was installed.

Illumination of Machinery.

The proper illumination of the machinery, especially the large rotary presses of the present day, is something of a problem. The conditions resemble somewhat those met with in textile factories. One may do everything possible by the placing and shading of the permanent general lights, and by the use of light surroundings, to promote good diffusion of light, but it is hardly possible by the aid of general illumination alone to ensure that all the requisite parts of such complex machinery will be well illuminated and clearly seen. This is a question that might well receive some attention from designers of such machinery, who should bear in mind the desirability of important parts being easily accessible and readily inspected. They might go further and embody in the design of the machine suitable facilities for the permanent mounting of supplementary protected lamps illuminating the vital parts where adjustments are made. In the absence of such facilities the attendant must rely on the use of portable lamps or special pendant lights at essential points. It is a matter of principle no unprotected lamp should be inserted within the machine, as the trouble arising in the event of a lamp being broken would be considerable. The lamps must be so situated or used that a flood of light can be directed on the part inspected without the operator's eyes being dazzled by glare from an exposed mantle or filament, or inconvenient shadows being cast by his body. In rooms for packing and despatching the conditions of illumination are simple, and in lofty rooms semi-indirect lighting affording 2-3 foot-candles should answer requirements.

Differentiated Lighting for Various Processes.

In the following table are assembled figures showing the great variations met with in different works for identical processes, and also as an indication that the values indicated in the Home Office Report are such as can readily be complied with in practice. While practice in different works varies, it should be possible, by means of tests conducted in co-operation with those employed in the industry, to determine desirable minima based on scientific investigation. It must, of course, be recognised that the mere provision of suitable numerical values of illumination alone is not sufficient to ensure adequate lighting; attention must be

paid to such important factors as absence of glare, avoidance of inconvenient shadows, &c.

Process.	Illumination (foot-candles).			
	Limits of values given by Mr. Eck and Mr. Goodenough.	Author's tests in 1923.	Home Office Third Report, Recom- mended minima.	Am. Illuminating Engineering Society (Industrial Practice)
Linotype and Monotype machines	(On copy .. 4-25) (On keyboard .. 3-8)	3-8	5	10-20
Type-setting in composing rooms:—				
On frames ..	5-14	6-8	5	10-20
On imposition benches ..	2-10			
Stereo foundry ..	0.5-4	—	3	5-10
Machine room:—				
On printing presses and examiners' tables ..	1-8	4-8	3	5-10
Editorial rooms ..	3-15	—	—	5-10
Proof-reading ..	3-10	5-10	3	5-10
Packing, folding, despatching, &c. ..	2.5-6	—	3	2-5

Block-Making.

Engraving processes are frequently mentioned as an instance of "fine work" requiring specially high illumination; here local adjustable lights seem desirable in addition to moderate general lighting. In etching and lithography operators seem to prefer a very highly diffused source, with an extensive luminous area, which is reflected in the more or less polished material in which they are working. Colour-printing, again, is a process requiring highly-specialised illumination, as one needs not only an exceptionally high illumination, but a quality of light enabling colours to be revealed in the same manner as by daylight. Developments in "artificial daylight" are of very great interest to colour printers, and in many cases the system has been used with benefit and has enabled work to be carried on successfully when daylight failed. The aim should be to concentrate the light at the place of inspection, which should be screened from the general uncorrected artificial illumination, and to obtain an illumination which approaches normal daylight not merely in colour but also in intensity.

Examination of "Copy."

It is singular that in some newspaper offices where the need of good lighting in the printing section has been fully recognised, the editorial department conducts its work in very meagre and inadequate light. The matter sent in to a newspaper is still largely written by hand, often in hurried and crabbed writing and on flimsy paper. Even matter presented in proof often does not compare favourably with the appearance of the type in the finished production. An editor's or sub-editor's room should contain suitable general lighting preferably of the semi-indirect type, supplemented by a well-shaded table lamp. Proof-readers, also, in general would prefer a special lamp over their work.

THE METROPOLITAN ASYLUMS BOARD
AMBULANCE SERVICE.

IN THE LANCET of April 21st we referred to the questions recently raised in the press and elsewhere concerning ambulance arrangements in London, and to the need for more ambulances for the use of the three authorities—the London County Council, the Metropolitan Asylums Board, and the St. John Ambulance Association—which direct ambulance services in the London area. In view of the public interest roused, the Ambulance Committee of the Board submitted a report which was adopted on May 5th, with a recommendation that a copy be forwarded to the Ministry of Health. The Board have six ambulance stations situated in different parts of London, and a large repair depot at Fulham. They have at these stations 107 motor ambulances and omnibuses, apart from a number of motor goods lorries and tractors. The primary function of the Board's ambulance service is the removal of cases of infectious disease in the Metropolis. The Board also remove a considerable proportion of the patients in their other institutions for tuberculosis, sick and convalescent children, and mental defectives. They undertake, with their motor transport service, a substantial portion of the transport of goods from their central stores for their institutions.

History of the Metropolitan Ambulance Service.

In 1906 a departmental committee of three members was set up by the Home Secretary to inquire as to the provision of and possible improvement in ambulance service for "cases of accident and sudden illness occurring in streets and public places within the Metropolis." This committee heard a great deal of evidence and reported in December, 1906. Two of the members reported in favour of an extension of the non-infectious service of rapid ambulances initiated by the Metropolitan Asylums Board, working in close co-operation with the Metropolitan Police. The third member was of opinion that the London County Council should be the authority for the street accidents ambulance service. A good deal of emphasis was laid at that time upon the desirability of keeping the infectious ambulance service and the street accident service distinct. In 1909 the Metropolitan Ambulances Act was passed, empowering the London County Council to establish and maintain, or to contribute towards the cost of or otherwise to aid in establishing or maintaining, an ambulance service for dealing with cases of accidents or illness (other than infectious diseases) within the County of London. In November, 1913, the County Council invited the Board to prepare a scheme of co-operation with them and other metropolitan authorities for the establishment of a street accident ambulance service, and in the same month the Board prepared and submitted a complete scheme for dealing with this matter. It was, however, not accepted, and the Council proceeded themselves, in 1915, to set up the existing street ambulance service. Meantime, the Board's ambulance service had, apart from its normal work, been largely utilised for the removal of non-infectious cases from private houses to hospitals, and it has continued to meet this need.

The following statistics show the extent of the removal of patients carried out by the Board in recent years, viz. :—

	Year ending Dec. 31st.		
	1920.	1921.	1922.
To the institutions of the Board—			
(a) Infectious	36,594	48,547	33,679
(b) Non-infectious	3,859	4,361	4,807
Other removals—			
From home to hospital, infirmary, or elsewhere, or on return journeys.	18,827	13,610	13,281
Total	59,280	66,518	51,767

Present Positions of the L.C.C. and M.A.B. Services.

In the case of removals of private persons from their houses to hospitals or other addresses, the Board charge a fee for the use of the ambulance. For removals within the administrative County of London the fee is a fixed one of 10s. per journey, with an additional charge when a nurse is supplied. Outside the County of London a mileage rate is fixed; the removal of sick patients has been satisfactorily undertaken to distances up to 200 miles from London. In this matter of charging for ambulance service, the Board's service differs from the street ambulance service of the County Council, which is free, but the Board's charge is low, and in the great majority of cases has been paid without demur. No urgent case has been refused through failure to produce the amount charged at the time of removal, and in cases of poverty or distress applications relating to the charge have received favourable consideration.

The present position is, therefore, that the London County Council have provided a free ambulance service to deal with street accident cases, while the Board have a service which deals with infectious and other hospital removals, and is thoroughly adequate to deal with all demands for removals of all kinds, other than street accidents—e.g., from private houses or dwellings in London. It is, of course, impossible to guarantee in a town the size of London that there would never be the slightest delay of any kind in removing a patient. The County Council have recently published a record of their work, and in regard to that of the Board, also, complaints of delay have been almost negligible, having regard to the great and fluctuating demands it meets. The Board never refuse an urgent call either within the County of London or from over the border, but they do not encroach upon the street accident service, nor is there any occasion for the latter, as a rule, to enter the field covered by the Board's service. The Board have always been ready to work in cordial co-operation with the Council and any other authority maintaining or requiring ambulance services. The vast majority of house removals are effected on medical advice, and steps are being taken to acquaint every medical practitioner in London of the method by which the Board's ambulances, with or without nurses, may be promptly obtained at any hour of the day or night. The Commissioner of the Police has been informed that the Board's ambulances are available for police calls at any time for removal from houses in London and that the question of payment will be dealt with after the removal.

THE WORK OF THE FRIENDS' RELIEF COMMITTEE.

THE ninth report of the Emergency and War Victims' Relief Committee of the Society of Friends covers the year from April 1st, 1922, to March 31st, 1923. The well-known work of relief, which began in France, will have its permanent memorial in that country in the shape of the maternity home opened at Châlons-sur-Marne in June, 1922. This maternity home is the successor of the emergency maternity hospital opened by the committee in December, 1914; the number of births during the year was 220. A department for children under two years, and ante-natal and nursing care, further the maternity and child-welfare work of the hospital.

Russia.

The work of famine relief in the Buzuluk area of Russia—an area roughly the size of Yorkshire and Lancashire, formerly having a population nearing half a million, of whom one in three died during the famine—will, it is hoped, be terminated after the next harvest. Since last summer, when typhus and other epidemics had spread widely, and cholera was feared, health conditions have greatly improved, although malaria has been prevalent. Dr. M. D. Mackenzie, medical officer of the Friends' Mission, has organised the medical side of the work; an epidemic hospital at Buzuluk was reopened, and entire responsibility for six months' upkeep assumed by the mission. Ten other hospitals have received equipment and food enabling them again to be opened. 80 institutions have received instruments, drugs, and vaccines, and cholera vaccine sufficient for 100,000 persons was distributed to local medical men. A sanitary guard was established at Buzuluk station to watch for typhus, and a communal laundry was repaired and set in order in the town. A bacteriological laboratory has also been set up for blood-testing purposes. In all this work Russian doctors take an active part; complete arrangements have been made for handing the organisation over to them when the mission leaves the country.

Austria and Poland.

From Austria and Poland, also, the committee hopes to withdraw its workers during the summer. Here the chief medical interest of their activities has recently lain in preservation of the standard of tuberculosis dispensary work and child welfare organisation. The supply of meals to university staffs and students has now been discontinued in Poland; that in Austria continues, and has been several times referred to with great appreciation by our medical correspondent in Vienna.

The committee is now appealing for funds to complete its great work. During the period under review the London expenditure was over £300,000, of which the English administration expenses amount to 3.79 per cent. Donations should be sent to the Friends' Relief Committee, 10 and 11, Fetter-lane, London, E.C. 4.

METRIC EQUIVALENTS.

WE have received from Mr. A. E. Bawtree, F.R.P.S., a card containing scales for finding metric equivalents at mensuration results without calculation. Sixteen scales are printed on the inside of a card, which, when folded, measures 5 in. by 4 in. Each scale has the English quantitative divisions on one side of a line, and the metric divisions on the other, so that readings can be instantly taken either way. Into their metric equivalents Nos. 1, 2, and 3 convert miles, yards, and inches; Nos. 4, 6, and 7 convert square yards, square inches, cubic yards, and cubic inches; No. 8 deals with pressure in pounds per square foot; Nos. 9, 10, 11, and 12 deal with tor pounds, grains, and fluid ounces and also indicate gallons; Nos. 13, 14, and 15 compare Fahrenheit and Centigrade thermometer scales over a range from absolute zero to 2000° C.; No. 16 gives the circumference of a circle when the radius is known, and from this information with regard to spheres, cylinders, and cones is readily found. Students and teachers in many branches of learning, businessmen, and all whose work or hobby brings them into contact with these calculations will find the cards useful. They can be obtained, price 1s. each, post free, from Mr. Bawtree, 7, Manor Park-road, Sutton, Surrey.

Humagsolan Tablets.—These tablets (see THE LANCET, March 31st, p. 658) are coated with the usual silver deposit as an extra protection to the ingredients.

Hospital Saving Association.—The address of the Association is now 77, Cambridge-terrace, London, W. 2 (telephone: Paddington 1653). Mr. F. B. Elliot is the general secretary.

A Lecture

ON THE

PHYSIOLOGY OF INSULIN.

*Delivered in the Institute of Pathology and Research,
St. Mary's Hospital, on May 10th, 1923,*

By H. H. DALE, C.B.E., M.D. CAMB.,

F.R.C.P. LOND., F.R.S.,

DEPARTMENT OF BIOCHEMISTRY AND PHARMACOLOGY,
NATIONAL INSTITUTE FOR MEDICAL RESEARCH.

To realise the significance of the discovery of insulin we have to go back nearly 40 years. Before 1885 there had been suggestions, based on post-mortem observation, of some connexion between the pancreas and diabetes; but I think it is extremely improbable that clinical and post-mortem observation alone would, even yet, have produced any clear evidence that diabetes is due to a defective function of the pancreas.

GROWTH OF VIEWS ON PANCREATIC FUNCTION.

Before 1885 the experimental evidence in favour of this view was certainly no clearer. Its results, so far as the pancreas was concerned, were chiefly negative. Claude Bernard¹ and Schiff² had shown that the pancreatic ducts could be blocked with paraffin, excluding the pancreatic juice from the intestine and eventually causing fibrosis and shrinkage of the organ, without any serious impairment of the animal's health. It was, therefore, quite clear that diabetes had no connexion with the only function of the pancreas then known—viz., that of forming a digestive juice. Various other workers, from 1682 onwards, had attempted to remove the pancreas by operation, but they failed to extirpate it completely, and no diabetes was recorded. On the other hand, the work of Claude Bernard³ had demonstrated the possibility of producing a glycosuria by indirect stimulation of the nerves to the liver, and the general impression left by combining clinical with experimental results was that, when diabetes was associated in man with some lesion of the pancreas, this resulted from an involvement of the solar plexus. Then, in 1885, the position was completely changed by v. Mering and Minkowski's⁴ success in removing the pancreas completely from dogs, and their demonstration that this operation was regularly followed, within a day or two, by the appearance of a condition resembling severe diabetes mellitus in man, in practically all respects. Among those who confirmed this observation Lepine⁵ appears to have been the first to suggest definitely that it indicated the production by the normal pancreas of an internal secretion, necessary for the proper metabolism of carbohydrates and fats. Others, such as Pflüger, long clung to the view that the effect of the operation was not due to loss of the pancreas, but to the injury of nerves to the duodenum. Lepine's view, however, was fully established when Minkowski⁶ and also Hédon⁷ showed that when a portion of the pancreas was first grafted successfully under the skin of the abdomen, the rest of the gland could subsequently be removed with impunity, diabetes only appearing later and gradually as the grafted portion became sclerosed and degenerated, or immediately if it was removed by a small, second operation. The suggestion was made independently by Schafer and by Diamare⁸ that the internal secretion was produced, not by the ordinary secreting acini of the gland, but by the so-called islets of Langerhans. There was at that time no direct evidence in favour of the supposition, and only the suggestive fact that these islets were richly supplied with blood capillaries. Later was discovered (Schultze⁹) the fact, important in the history of insulin, that if the pancreatic duct was blocked with paraffin, the sclerosis of the gland which followed, and which was already known not to entail the appear-

ance of diabetes, destroyed the ordinary secreting acini, but left the islets with their circulation, and presumably their function intact.

THE ISLETS OF LANGERHANS AS SOURCE OF AN INTERNAL SECRETION.

A presumption being thus established in favour of the islets as the source of an internal secretion from the pancreas, and of defect in their function as the cause of diabetes, the pancreas from fatal human cases of the disease was the object of diligent histological examination all over the world, but the results were indefinite. Some observers, such as Wechselbaum and Stangl,¹⁰ and Opie,¹¹ described degenerative changes in the islets from such cases, but in very many instances observers failed to detect any change. The histological methods then available were, indeed, inadequate for its detection; and even when the methods for staining and recognising the different kinds of cells in the islets were developed by Lane¹² and Bensley,¹³ their successful use demanded material of such perfect freshness that they can very rarely, even now, be properly applied to the human pancreas obtained at post-mortem examination.

Here, again, we have to depend, for the next item of definite information, on experiment. Allen,¹⁴ as the result of his experiments on dogs, had found that a small remnant of pancreas, sufficient to maintain the animal's health on a restricted diet, would break down in its function if a diet were given in excess of its power of control. The breakdown might in this way be made permanent. This observation, with its close analogies to the effect seen in the diabetic man who breaks his dietary discipline, enabled Allen¹⁵ later to compare the histology of the islets in a still normally functioning pancreatic remnant with those in a similar portion, whose function had been broken down and permanently destroyed by overwork. The result was highly instructive. Of the two types of special cells, so-called α and β cells, with differently staining granules, which had been shown by Lane and Bensley to exist in the islets, the α cells apparently suffered not at all in the functional breakdown, while the β cells lost their granulation, became vacuolated and distended, burst and disintegrated altogether. By taking the condition in time, and resting the β cells completely by a period of starvation, they could apparently be brought to recovery.

The whole story, then, seems to have been brought into reasonable order on that side; diabetes mellitus is apparently due to a breakdown in the function of the islets of Langerhans, and especially of their β cells. Naturally weak in the individual, perhaps, or with a resistance impaired by some infective or toxic agent, they give way to the least overstrain thrown on them by the diet; if taken in time they can be partially restored by dietary rest, but remain permanently weakened and liable to further breakdown. Thus has been rationalised the treatment of diabetes by resting the defective pancreas, introduced by Allen as the result of his earlier experiments, and, to give credit to scientific clinical work and to our own countryman, arrived at simultaneously by G. Graham as the result of careful and quantitative observations on human patients.

Meanwhile a large number of efforts, made by different workers, to prepare from the normal pancreas an extract containing the missing principle, in sufficient strength to make good the defect in the artificially diabetic dog, or the naturally diabetic man, were almost wholly unsuccessful. Administration by the mouth of fresh or dried pancreas, or various forms of extract, has been tried and tried again, and is apparently still being used by some. The evidence we now have, as to the nature of the active principle, makes it incredible that any significant quantity of this, even if present in the preparation used, would escape the destructive action of the digestive juices. Extracts of various kinds given by hypodermic or intravenous injection gave results at best equivocal. Starling and Knowlton¹⁶ believed they detected an effect of a boiled watery extract of pancreas on the

sugar-consuming power of the heart from a diabetic dog. This, though it received confirmation from Starling and Evans's¹⁷ determinations of respiratory quotients under the same conditions, and from Maclean and Smedley's¹⁸ experiments with artificial perfusion, was abandoned by Starling himself in a paper with Patterson.¹⁹ Murlin and Kramer,²⁰ using a similar extract, and injecting it into diabetic dogs in large quantities, obtained a suggestion of a positive effect, but came to the conclusion that it was due to alkali added to the extract before injection.

PROOF OF AN ANTIDIABETIC PRINCIPLE.

The nearest approach to a proof of the existence of an antidiabetic principle in the pancreas, in quantity sufficient for detection, was made by Kleiner²¹; but his method gave not the slightest promise of practical application. He injected large doses of unfiltered, watery emulsion of fresh pancreas into the veins of diabetic dogs. On the other hand, the nearest approach to the method, which has proved the key to the practical production of insulin, was made by E. L. Scott,²² who himself, however, described the preparation he so obtained as completely devoid of the specific action he sought to preserve. It was beyond doubt, then, that the pancreas during life produced and added to the blood a substance necessary for normal metabolism, and especially for the normal utilisation of sugar; but attempts to extract this substance and to administer it artificially had given negative, doubtful, or capricious results, affording no hope of practical application. The general impression, I believe, was that the active principle was either secreted into the blood as fast as it was formed, so that the pancreas never at any one time contained a store of it, or that, if stored in the living gland, it was so unstable that it would cease to exist almost as soon as it was extracted from the cells.

There was another alternative. The principle might be lost in extraction, not on account of an inherent instability, but because it happened to be produced by a tissue scattered, in small packets, through a gland which forms the most powerful digestive ferments in the body. This possibility must have occurred to many physiologists, who also knew that the glandular cells, forming the ferments, could be brought to complete degeneration and made to disappear by blocking the ducts of the gland, leaving only the islets intact and functional. On this view, then, from such a degenerated pancreas it should be possible to extract the active principle of the islets, in quantity sufficient to give clear demonstration of its action. Many, again, may have had this idea; but the whole field of investigation had become so littered with the traces of failure, or of success so uncertain as to be almost more disheartening, that it needed fresh minds, and enthusiasm unclouded by disappointment. Fortunately the idea presented itself to Dr. Banting, who, with the coöperation of Mr. Best, began to put it to the practical test in the medical school at Toronto.²³

EXPERIMENTAL DEMONSTRATION.

In a few months the first point was settled. A pancreas in which the ferment-forming cells had degenerated as the result of blocking the duct would yield, to simple extraction with cold saline solution, an extract, injections of which promptly reduced the blood-sugar of an artificially diabetic dog. Sugar given with the extract was partly retained and used, instead of being entirely excreted. The active principle was destroyed by boiling or by incubating with pancreatic juice, so that there was abundant reason for most of the earlier failures. Similar active extracts were then prepared from the pancreas of foetal calves, taken at a stage of development before the pancreatic ferments had appeared. Extracts from normal adult pancreas, made with acidulated alcohol, were then tried and found to contain the active principle, and by daily injections of such an extract a dog from which the pancreas had been completely removed was kept alive and healthy for ten weeks, and then killed.

With the coöperation of Mr. Collip²⁴ the investigation, which was now under the supervision of Prof. Macleod, attacked the problem of producing, from normal pancreas from the slaughter-house, an extract sufficiently stable and free from toxic concomitants to justify its trial on human patients. This was achieved by a process which, in its essence, consisted of extracting from the pancreas constituents soluble in alcohol of 80 per cent. strength, but insoluble in alcohol of 93 to 95 per cent. strength. This fraction contained most of the extracted antidiabetic principle, now called "insulin." The possibility was thus provided for large-scale use in human therapeutics. Various technical difficulties had to be overcome, and many still wait for solution, to ensure that all the insulin available in the raw material is extracted, that it is freed, as far as possible, from inert or toxic materials extracted with it, and that it is obtained in a clean, safe, and stable condition. Great progress has already been made, and the insulin now available is a very different product from that of even a few months ago. But I am not proposing to-day to deal, except incidentally, with insulin as a practical therapeutic agent. I propose rather to speak of the new possibilities of physiological investigation which are opened up by the now proven fact that this pancreatic principle can be obtained and kept in a highly active form. For, though we cannot lightly value the immediate prospect of relief from almost unbearable deprivation which it presents to many sufferers, this is a small thing in comparison with the new power of penetrating the mysteries of metabolism which insulin will give. The immediate gain for humanity is great; the ultimate gain is as yet immeasurable.

THE CHEMICAL NATURE OF INSULIN.

Let us consider first what little is known as to the chemical nature of insulin itself. No approach to its isolation in a state of chemical purity has yet been made, yet enough has been done already to make us certain that it is a very intensely active substance. By methods of fractional precipitation, which its chemical properties make possible, a dose of insulin sufficient to produce hypoglycæmic convulsion in a full-grown rabbit—an effect I shall deal with presently—can be obtained in the compass of a quarter of a milligramme or less of solid matter. Yet, such is the tendency of insulin to become adsorbed on almost any precipitate which is formed in its solutions, that we can feel fairly certain that only a small proportion of this tiny weight of material consists of insulin itself. When a solution of the impure insulin is saturated with ammonium sulphate the activity passes into the precipitate which is produced; when the reaction of the solution is made acid to a degree represented approximately by pH5, a precipitate forms at this iso-electric point, again containing the activity (Doisy, Somogyi and Shaffer²⁵). My colleague, Dr. H. W. Dudley has found what will probably be a valuable aid to the purification of insulin, in the fact that when picric acid is added to its solutions a very insoluble precipitate is formed, containing all the insulin, and that this, by appropriate means, can be converted into a soluble hydrochloride, still containing all the activity.

We have every reason to believe that insulin is a protein derivative, and a fairly complex one. It is not only rapidly destroyed by alkaline trypsin, which will split quite simple polypeptides, but also, as Dudley has recently found, by pepsin, which readily attacks only much more complicated molecules. This indicates that insulin is a much more complex body than other hormones, such as those of the pituitary body, which are practically untouched by peptic, though rapidly destroyed by tryptic digestion. Incidentally, it throws light on the fact, already determined directly by the Toronto workers, that insulin has very little if any action when it is administered by the mouth. The relatively large molecule of insulin makes difficult its absorption through intact mucous membranes. Dr. Blumgart, who in Boston had found that pituitary extract could be absorbed through the nasal mucous membrane and effectively administered by this route

or the treatment of diabetes insipidus,²⁶ has found, with Dr. George Graham, here in London, that insulin is very imperfectly absorbed from the nasal passages. "Jelfer"²⁷ has recently demonstrated that insulin can reach the circulation when it is rubbed as an ointment onto the shaven skin of a rabbit; but it is apparent from his figures that only a small part of the dose used was absorbed. Though it seems to be a fairly complex protein derivative, insulin is very stable to heat when its solution is made strongly acid. Under such conditions it will survive heating to 100° C. for half an hour. In alkaline solution it is very unstable, its activity disappearing rapidly even at body temperature.

What little we know, then, as to the chemical nature of insulin does not give any serious prospect of its isolation and of the discovery of its structure. It certainly does not approach the chemical simplicity of adrenalin, or even of thyroxin. What we can expect is that it will be obtained in a condition of higher purity and stability than has yet been attained.

ITS DISTRIBUTION IN NATURE.

The study of the distribution of insulin in nature is already given interesting, and some surprising, results. In the higher animals it seems to be strictly limited to the pancreas, and there is now direct evidence of its further limitation to the islets of Langerhans. In certain fishes, such as *Lophius piscatorius*, the angler fish, the pancreas is spread out to a thin layer in the mesentery and along the mesenteric veins. The islets are gathered into several secretory rounded masses, covered only by a film of ordinary pancreatic tissue, so that, from this fish, the islets and the ordinary glandular tissue of the pancreas can be obtained separately. Rennie and Fraser²⁸ many years ago administered islet tissue from this fish to diabetic patients, without any decisive result. Hence they mostly gave it by the mouth, a negative result, as we now know, was to be expected from nearly all their attempts. Macleod²⁹ has recently proved definitely that the *Lophius* islets are rich in insulin, while the ordinary acinous tissue of the pancreas contains none. The same result was obtained in another fish, the sculpin. In vertebrates, then, it seems beyond doubt that the formation of insulin is located exclusively in the islets of Langerhans. The suggestion, however, that its presence is essential to the normal metabolism of carbohydrate by all tissues has led several observers to search for insulin in lower forms of life. Already evidence has been given by Inter and Smith³⁰ of the possibility of extracting from yeast something having the same physiological effects as insulin, while Collip³¹ records that he has, in addition, obtained similarly active preparations from clams and from a large variety of rapidly growing vegetable tissues. These results, if confirmed, will have an important bearing on the function of insulin in vital processes generally; but for the present, at least, the vertebrate pancreas remains the only practical source for its preparation on a large scale.

ITS POWER OF REPLACING THE INTERNAL PANCREATIC SECRETION.

The results so far obtained concerning the physiological action of insulin are full of interest and promise. The diabetic animal or man it does all that could be expected from a supply of the missing internal secretion. Not only is the blood-sugar lowered rapidly, with a sufficient dose, to the normal concentration or below it; the so-called acetone bodies also, produced by abnormal metabolism of fat, disappear from the urine and the blood, lipæmia, if present, rapidly removed, and in every way, for a few hours, the subject becomes practically a normal individual, capable of taking a quantity of carbohydrate, proportionate to the dose of insulin injected, without a rise of his blood-sugar above the normal level. In a completely diabetic dog the respiratory quotient is about 0.7, indicating that the body is

burning fat and protein and utilising practically no sugar. The Toronto group have shown that, if sugar is given to such a dog, there may be a slight rise of the respiratory quotient, indicating that a very little is utilised. If sugar is given with insulin the respiratory quotient rises to a normal level of about 0.9.³² This would seem to indicate that the power of oxidising sugar is temporarily restored to the diabetic animal by supplying the missing factor, insulin. The dog without a pancreas, if sugar and insulin are administered for a few days, also regains the power of storing glycogen in the liver, which, when the animal is killed, is found to contain a good store of this substance, in contrast to that of the untreated control animal, in which the liver contains mere traces (Banting, Best, Collip, Macleod, and Noble³³). All the evidence fits well with the view that glucose can be oxidised by the tissues if insulin is present, but that in its absence they cannot deal with it, so that all the sugar-making reserves of the body are called upon to pour into the blood an excess of the food which the hungry tissues need, but cannot use.

The effects of insulin on normal animals, however, strongly suggest that the part played by insulin, though essential to the use of sugar by the tissues, is not to cause its immediate combustion. The action on normal animals, indeed, presents a series of fascinating problems, the solution of which will probably remove long-standing obscurities from the conception of the metabolism of carbohydrates. When a normal rabbit, the blood of which contains, say, 0.12 per cent. of dextrose, receives a dose of insulin the dextrose soon begins to disappear from the blood. By the end of an hour it may have fallen to 0.05 per cent., after an hour and a half to 0.03 per cent., and after two hours, if the dose of insulin has been large, there may be practically no sugar left in the blood. As the blood-sugar reaches the level of about 0.04 per cent. the rabbit shows pronounced restlessness, and a little later falls into violent convulsions.³⁴ Analogous nervous phenomena may appear in the human patient who has received a dose of insulin, excessive in relation to the supplement of his diet. They are certainly dependent on the lack of sugar in the blood, since they disappear immediately if dextrose is injected.

ITS RELATION TO THE COMBUSTION OF SUGAR.

So far the evidence seems simple enough. Excess of insulin has so accelerated the combustion of dextrose, we might suppose, that the body has used up the whole available supply in an hour or two. But such excessive combustion might be expected to reveal itself in a rise of body temperature and an accelerated respiratory metabolism. The results of actual determinations made by Dudley and Laidlaw, and simultaneously by Trevan and Boock,³⁵ are entirely opposed to this expectation. The respiratory quotient, indeed, rises somewhat at first, as though sugar were being combusted in greater proportion to proteins and fats; but the rise is due simply to accelerated output of carbon dioxide, and is not accompanied by any increase in the consumption of oxygen. If the combustion of sugar is indeed accelerated, that of the other substances must be correspondingly or disproportionately depressed. Even the rise in the respiratory quotient is an evanescent phenomenon, and by the time the blood-sugar begins definitely to fall below the normal the usage of oxygen and the output of carbon dioxide are both falling rapidly, and with them the body temperature, so that in a couple of hours in the rabbit, in half-an-hour in the mouse, the respiratory metabolism is only one-half of the normal or less, and the animal, in the intervals of convulsive seizures, lies cold and collapsed. Now this does not look at all like a mere acceleration of carbohydrate metabolism—a principal source of bodily energy and heat; it rather suggests the reverse. Kellaway and Hughes, have obtained closely similar results on the respiratory metabolism of the normal human subject, when a large dose of insulin was given during a fast.³⁶

If sugar disappears, and, as this evidence suggests, is not burned, it must be converted into something else. The first and most obvious suggestion is that it is converted into glycogen, and accumulated in this form in the liver or the muscles. This is certainly not the case. By the time a rabbit or a mouse has reached the stage of insulin convulsions, Dudley finds that a large part, in some cases practically the whole, of the normal glycogen has disappeared from the liver and the muscles as well. So that the process of removal of sugar, whatever it may be, has accounted not only for what was circulating as such in the blood, but also for the much larger quantity potentially available in the form of glycogen in the liver and the muscles. Another possibility, which we have tested, is that the sugar may be converted into fat. Such a conversion would well explain the preliminary rise in the respiratory quotient. But Dudley has found no evidence that it occurs; the liver of the animal poisoned by excess of insulin contains neither more, nor significantly less fat than that of the normal animal.

Experiments on isolated organs have as yet given but little help. Hepburn and Litchford,³⁷ indeed, have found that dextrose disappears from Locke's solution, circulated through the isolated heart, at three or four times the normal rate, if insulin is added to this solution. Before the discovery of insulin Clarke³⁸ had shown that the isolated heart removed sugar more rapidly from Locke's solution if the latter was first perfused through the pancreas. But there is no evidence yet that the sugar so removed is burned; if it were, indeed, the heart might be expected to put out energy at three or four times the normal rate, and there is certainly no evidence of this. We are left with the same problem as that presented by the whole animal. Sugar disappears, but we do not know how.

PRESENT POSITION OF KNOWLEDGE.

That is the state at present of the question as to the mode of action of insulin. There is no doubt whatever that its presence in the body in some way is essential to the use of sugar by the tissues, and that it can restore the power of using it to the diabetic; but the manner of its intervention remains dark. Some will doubtless suspect a connexion between these apparent anomalies and the evidence produced, in recent years, to show that the tissues do not use dextrose directly as such, but after its conversion into a hexose phosphate (Emden³⁹), for which, according to one suggestion (Laquer⁴⁰), the dextrose must pass through the form of glycogen as an intermediate stage. Winter and Smith⁴¹ have recently put forward some highly suggestive evidence in support of a theory that the sugar in normal blood is not ordinary $\alpha\beta$ glucose, but a reactive form having similarities with the so-called γ -glucose. (For difficulties in the way of this identification, see Hewitt.⁴²) Winter and Smith suppose that the function of insulin may be to catalyse the conversion of ordinary glucose, which the body cannot burn, and with which they identify the sugar in the blood of the diabetic, into this reactive, usable form.

Neither this ingenious and attractive conception, nor any of the new evidence concerning the intermediate stages of sugar metabolism, seems to me to throw any light on our difficulty concerning the mode of disappearance of sugar from the blood of the normal animal when insulin is injected. The reactive sugar of the normal animal's blood, if it be such, disappears under the stimulus of insulin just as that of the diabetic does; and in the case of the normal animal the disappearance, in all but its earliest stages, is associated with a fall, not a rise, of the respiratory metabolism. I am inclined, myself, to suspect that the explanation is a simpler and more obvious one than any theory of the conversion of sugar into an unknown intermediate product can by itself afford. It is not, at any rate, absurd, to expect that the state produced by excess of insulin will be the direct antithesis of complete pancreatic diabetes. In the latter condition,

in the absence of insulin, the body cannot use glucose; it is at least possible that, when excess of insulin is injected, the effect is so to shift the incidence of metabolism on to the carbohydrate that the body will use practically nothing else, and supply almost all its energy needs by burning sugar, so long as the supply lasts. The result would be the preliminary sharp rise of the respiratory quotient, which actually occurs, and this would not necessarily be accompanied by an increase of total metabolism. As the supply of carbohydrate began to run low, the general metabolism would fall rapidly, until, when the blood-sugar reached a certain level, the failing combustion of this substance would be overtaken by what metabolism of protein and fat still went on, and the respiratory quotient also would fall below the normal. Direct evidence, including measurements of the protein metabolism, if we can obtain them, may prove that such a conception is untenable. But, for the present, I believe that it corresponds with what knowledge we have, and renders intelligible such phenomena as the symptoms which appear as the carbohydrate store nears exhaustion, and their almost instantaneous removal by the injection into the blood of glucose and, so far as we know, of nothing but glucose—not even of glycogen.

ANTAGONISM BETWEEN PANCREAS AND PITUITARY BODY.

There is one other item of physiological information recently acquired, which seems to me to present possibilities of great interest. It has long been known that the pituitary body, with regard to its effect on carbohydrate metabolism, has some obscure functional antagonism to the pancreas. In minor degrees of pancreatic defect a patient has a lower tolerance for sugar, so that a small quantity causes the concentration in his blood to rise to an abnormal height, with the result that sugar escapes into his urine. In defects of the pituitary body the opposite condition has been described by Cushing. The patient has a greatly enhanced tolerance for sugar, so that he can take much larger quantities than a normal man without hyperglycemia or glycosuria. Some recent observations by Burn⁴³ seem to show clearly that this is due to definite antagonism between a hormone of the posterior lobe of the pituitary body and insulin. A dose of pituitary extract which will not, by itself, cause a significant rise of the concentration of sugar in the blood, will effectively prevent, or rapidly remove already produced, the fall in blood-sugar concentration produced by a dose of insulin. The Toronto workers have described the antagonism of insulin to hyperglycemia produced by a number of different agencies—apnoea, carbon monoxide, anaesthetics, adrenalin. In all these cases, however, the effect seems to be of the nature of a balance of two actions—one increasing the rate at which sugar enters the blood from the liver, the other the rate at which it disappears from the blood. In the case of the pituitary extract the effect seems to be only explicable as a direct antagonism to the action of insulin.

CONCLUSION.

I have indicated only a few of the directions in which the discovery of insulin is already widening physiological knowledge and presenting new problems of interest. There is every indication that it will prove to have an importance for physiology and medicine far beyond that of its use in the treatment of diabetes. Meanwhile, however, it is worth our while to consider briefly what even the partial knowledge of its action, yet available, indicates as the method by which insulin can be used with greatest benefit to the diabetic. There are doubtless cases in which the natural function has been so completely lost, the islet so hopelessly degenerated, that not even a partial recovery can be anticipated. In such, insulin can prolong life and make it more tolerable, but only at the cost of daily injections which can never be remitted or reduced. Such a result is, in itself, worthy of attainment, but it seems to me that there is something

much better to be aimed at. All the experience which had accumulated before the introduction of insulin pointed to the possibility of restoring to many diabetics a reasonable measure of normal function by giving their overworked remnant of islet tissue as complete a rest as possible. In many cases this was only achieved by a restriction of diet which was almost unbearable, though still compatible with life. If insulin is now used simply to enable such patients to eat a large quantity of food so long as they can tolerate daily injections, they will get no permanent benefit, and insulin will be wasted. On the other hand, if it is used as an aid to the regime of dietary rest, to enable these patients to obtain some recovery of normal function without such cruel reduction of their diet; if it is used to bring into this class, for which some measure of restoration is possible, others in whom, without insulin, no diet sufficient for life would keep the blood-sugar down and give the overstrained islets a chance of recovery; then, indeed, it will be used to the real advantage of the patients, and be worthy of all the extraordinary enthusiasm which its discovery has aroused.

References.

1. Bernard: Leçons de physiol. exp., 1856, t. ii., p. 274.
2. Schiff: Med. Centralbl., 1872, p. 790.
3. Bernard: Leçons sur le système nerveux, t. i., p. 444.
4. Mering, v., and Minkowski: Arch. f. exp. Path. u. Pharmacol., 1885, xxvi., 371.
5. Lépine: Lyon médical, 1889, lxii., 620.
6. Minkowski: Berlin klin. Wochenschr., 1892, p. 90.
7. Hédon: Arch. de Physiologie, October, 1892.
8. Diamare: Internat. Monatschr. f. Anat. u. Phys., 1899, xvi., 155, 177.
9. Schultze: Arch. f. Mikroskop. Anat., 1900, lvi., 491.
10. Wechselbaum and Stangl: Wien. klin. Wochenschr., xiv., 968.
11. Opie: Jour. Exp. Med., 1900, v., 397, 527.
12. Lane: Amer. Jour. of Anat., 1907, vii., 409.
13. Bensley: Ibid., 1911, xii., 297.
14. Allen: Studies Concerning Glycosuria and Diabetes, 1913.
15. Allen: Jour. of Metabol. Research., vol. i., Nos. 1 and 2.
16. Knowlton and Starling: Jour. of Physiol., 1912, xlv., 146.
17. Starling and Evans: Ibid., 1914, xlix., 85.
18. Maclean and Smedley: Ibid., 1912, xlv., 470.
19. Patterson and Starling: Ibid., 1913, xlvii., 137.
20. Murlin and Kramer: Jour. Biol. Chem., 1913, xv., 365.
21. Kleiner: Ibid., 1919, xl., 153.
22. Scott: Amer. Jour. Physiol., 1912, xxix., 3.
23. Banting and Best: Jour. Lab. and Clin. Med., February and May, 1922.
24. Banting, Best, Collip, Campbell, and Fletcher: Jour. Canad. Med. Assoc., March, 1922.
25. Doisy, Somogyi, and Shaffer: Jour. Biol. Chem., 1923, lv., Proc. Soc. Biol. Chem., xxxi.
26. Blumgart: Arch. Intern. Med., 1922, xxix., 508.
27. Telfer: Brit. Med. Jour., 1923, i., 715.
28. Rennie and Fraser: Biochem. Jour., 1907, i., 7.
29. Macleod: Jour. of Metabol. Research, 1922, ii., No. 2.
30. Winter and Smith: Brit. Med. Jour., 1923, i., 713, and Jour. Physiol., 1923, lvii., Proc. Phys. Soc., xl.
31. Collip: Nature, 1923, iii., 571.
32. Banting, Best, Collip, Hepburn, and Macleod: Trans. Roy. Soc. Canada, xvii., May, 1922.
33. Banting, Best, Collip, Macleod, and Noble: Ibid.
34. Banting, Best, Collip, Macleod, and Noble: Amer. Jour. of Physiol., 1922, lxi., 162.
35. Dudley, Laidlaw, Trevor, and Boock: Jour. Physiol., lvii.; Proc. Phys. Soc., March, 1923.
36. Kellaway and Hughes: Brit. Med. Jour., 1923, i., 710.
37. Hepburn and Latchford: Amer. Jour. of Physiol., 1922, lxii., 177.
38. Clarke: Jour. Exp. Med., 1916, xxiv., 621, and 1917, xxvi., 721.
39. Emden (and others): Zeitschr. f. physiol. Chem., 1914, xciii., 1-144.
40. Laquer: Zeitschr. f. physiol. Chem., 1922, cxxii., 26.
41. Winter and Smith: Jour. Physiol., 1922, lvii., 100; and Brit. Med. Jour., 1923, i., 12 and 711.
42. Hewitt: Brit. Med. Jour., 1923, i., 590.
43. Burn: Jour. Physiol., 1923, lvii.; Proc. Phys. Soc., xxviii.
44. Banting, Best, Collip, Macleod, and Noble: Amer. Jour. of Physiol., 1922, lxii., 559.

Mr. Henry Kimpton will publish shortly the first volume of Collected Papers from the Washington University School of Medicine, and a volume of Clinics and Collected Papers of St. Elizabeth's Hospital, Richmond, Virginia.

CHILDREN IN GENERAL PRACTICE.—A lecture with his title will be delivered in the Board Room of the Royal Hospital, Chesterfield, at 8 P.M., on May 30th, by Dr. H. C. Cameron, under the auspices of the Chesterfield Division of the British Medical Association. All members of the medical profession are invited to attend.

Annual Oration

ON

LIFE AND PROBLEMS IN A MEDICAL UTOPIA.

Delivered before the Medical Society of London on May 14th, 1923,

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IN 1516 Sir Thomas More published his famous work "Utopia," a description of an ideal commonwealth, or an imaginary country whose inhabitants are supposed to exist under the most perfect conditions possible. Many other writers, both before and since, have attempted a similar task, and a former distinguished President of this Society, Sir Benjamin Ward Richardson, in 1875 gave an address on "Hygeia," in which he told what a city should be if sanitary science were advanced in a proper manner. Now that we have a Ministry of Health fully established and many members of our profession strongly advocating a State Medical Service, it may be interesting to consider some of the conditions of life and some of the professional problems which would call for consideration if, not the medical profession as a whole, but—what is quite a different matter—the officials of the Ministry of Health were in a position to rule the country in a despotic manner as a benevolent autocracy. Obviously only a few points can be touched upon in a very limited time, but let us try briefly to survey the life-history of an average citizen under such a regime.

CONTROLLED MARRIAGE.

It is difficult to know where to start, but it may be convenient to commence with a young couple about to enter into the bonds of matrimony. Each one will have undergone a complete medical examination, including a careful investigation into the family history, a matter which will not depend upon the more or less imperfect recollection of the parties themselves, but on the full life-history of every citizen which will be available for reference. They will both, therefore, be provided with certificates proving that they are in every way fitted by heredity, physical fitness, and freedom from disease to undertake the responsible duty of propagating the race. They will have received also detailed instruction in all matters of sex function and hygiene, so that they may enter upon married life with the most ample knowledge of their reciprocal duties to each other and to the coming generation. A question will naturally arise as to the fate of those members of the community who fail to pass the stringent tests which will rightly be imposed upon all candidates for matrimony. We must trust that the general consensus of public opinion would suffice to prevent them from entering into irregular unions and begetting children who would probably fail to attain a proper standard of physical and mental fitness, but should such illegal occurrences unhappily become at all common the community would have to take suitable precautions in self-defence, and might decree that all adolescents should be examined at puberty and steps taken to sterilise those who could not reasonably be expected to beget healthy children. A similar operation might be performed later upon any who by reason of the subsequent development of disease became unfit for parenthood.

ANTE-NATAL PRECAUTIONS.

Our young couple, having passed the preliminary medical ordeals, are at length happily married and in due course the wife becomes pregnant. Imme-

diately upon the fact becoming known her condition will be notified forthwith to the medical officer of health, by whom she will be allotted to the nearest ante-natal clinic, and thus the unborn child will be brought within the grip of the health authorities, a grip never to be relaxed until, probably at a ripe old age, his mortal remains are disposed of, in the most hygienic manner possible—*cito, tuto et jocunde*—in the municipal crematorium.

A definite period of time will be fixed before the expected date of confinement, and also subsequent to it, during which the mother will be strictly forbidden to do any work, and special precautions will be taken to ensure that she is supplied with suitable food. At intervals throughout her pregnancy she will be carefully examined, so as to enable any complication or abnormality to be dealt with promptly, and also to obviate the necessity for a pelvic examination during the early stage of labour. Parturition amid the unhygienic surroundings of the patient's home will necessarily be strictly forbidden and in due course she will be admitted to the municipal maternity hospital, and thus the present death-rate of 0.4 per cent. from child-bearing should be reduced to an infinitesimal figure. I must leave it to the obstetricians to decide how far labour would be regarded and treated as a major operation and attempts made to sterilise the surrounding structures; but, as an indication of what the future has in store, I note that Dr. T. Watts Eden has lately told us that "in the United States an important group of younger obstetricians are advocating and practising induction of labour in all cases before term, to save the patient from the discomfort of the last few weeks of pregnancy, and that it is being done in our own country also to some extent."¹

The birth of the child will be duly notified and the mother fully instructed on the subject of breast-feeding before she leaves hospital. She will then be referred to the infant clinic or welfare centre, to which she will be required to take the infant every week, so that he may be weighed, his progress carefully watched, and his feeding superintended until he reaches school age and is handed over to the school medical officer. If any definite medical or surgical treatment should in the meantime be necessary he will be transferred to a treatment clinic.

THE PROBLEM OF POPULATION.

And now let us turn aside for a moment from the newly-born infant to consider a question on which the parents will rightly expect definite guidance, if not authoritative command, from the State—viz., what period should elapse before they again venture upon the responsibilities of parenthood and also how many children will it be advisable for them to beget. If any definite limits are fixed, advice will naturally be asked as to the best method of preventing a premature or a superfluous pregnancy. There are still some members of the community, few, indeed, I think in the medical profession, who do not recognise any limit as desirable to the number of a family and consider it a duty for parents to obey the ancient command, given under conditions very different from those of the present day, to be fruitful and multiply and have as many children as possible. They argue that a tenth or twelfth child may be a genius—a Shakespeare, Newton, or Pasteur, and that restriction of the family may thus involve a world loss.

Such good people, however little they may intend it, are the most zealous supporters of war, for are not most wars really due to the pressure of an increasing population? By providing an unlimited number of children they are doing their utmost to supply also unlimited "cannon-fodder." As medical science progressively lowers the death-rate and limits the extension of epidemics, whilst improvements in methods of transport steadily diminish the risks of localised famines, it is difficult to see any way by which the natural increase of population can be kept

from outgrowing the food-producing resources of the earth except by ever increasingly destructive wars. It is true there are still large areas in Siberia, America, and Australia very sparsely populated, but should the inhabitants of the world continue to multiply at the rate at which they have done during the last century, these vacant spaces would be filled within an appreciable time. As Dean Inge observes, "Over-population is the result of a very low standard of civilisation. Families are restricted whenever the parents have social ambitions and a standard of comfort."

It may, of course, be argued that if we fail steadily to increase our numbers, more prolific races will gradually displace those which are more or less stationary, so that presumably in course of time Germans will submerge French and English, Russians will conquer Germans, and Chinese overrun Russia. What an appalling prospect for the unfortunate human race—to be compelled to multiply as rapidly as possible, and then to have to choose between starvation and recurring, sanguinary wars! An objection may naturally be raised that if birth restriction were practised extensively the population might actually begin to decline, or at any rate cease to increase materially, so that emigrants would no longer be available to fill up the vacant lands in our colonies. This danger, however, could easily be met by a careful system of taxation. If after a certain number of years of married life parents had failed to produce, say, three or four children, and no adequate reason, either of health or finance, for the deficiency were forthcoming, heavy extra taxation could be imposed for each child under the minimum. It is interesting to note that in Vienna, a few months ago, owing to economic conditions, definite steps were being taken by the wage-earners' sick-clubs, in active coöperation with the gynaecologists, to encourage the prevention of conception amongst women whose circumstances, after investigation by competent persons, justified their wish not to have children.²

BIRTH CONTROL: A LEAD FROM THE MEDICAL PROFESSION.

Assuming, as I think we justifiably may, that, in the future Utopia birth restriction will not only be practised but encouraged, what directions will the medical profession give for the prevention of conception? Nature has provided so carefully for the all-essential factor of the propagation of the race, that possibly no method of restriction can be devised which will be absolutely free from drawbacks or disadvantages of one kind or another, whether of possible damage to health or of diminution of pleasure. Such conceivable drawbacks, however, can be hardly comparable to the evil results, at least in town life, of families of unlimited size. Some people assert that the only safe and right plan is absolute continence so long as pregnancy is not desired; they are usually either elderly folk who have probably forgotten that they ever had sex instincts, or worthy ladies who perhaps never developed them, or ecclesiastically-minded celibates who are apparently anxious to make a vicarious atonement for their own infertility by encouraging the highest possible fecundity in others. Anyhow, the suggestion that healthy young people should live together in the close association of happy married life, and yet consummate the marriage only at rare intervals, is hardly worthy of serious consideration, unless it be with the doubtless highly laudable but perhaps unnecessary object of providing work for unemployed psycho-therapists.

I do not propose to discuss other and more practicable methods of birth restriction, but will merely make one suggestion: from the average size of doctors' families one would infer that most of them practise some form of restriction, therefore, let all married medical men and medical women be invited to state, under the seal of strict anonymity, what method they employ. The replies would certainly be interesting and probably instructive.

¹ THE LANCET, 1922, ii., 998.

² THE LANCET, 1922, ii., 1400.

THE DOOMED APPENDIX.

Let us return from this digression to the life-history of our infant. Before he reaches school age several most important points will have to be considered: first and foremost, what superfluous parts or organs is it desirable to remove?³ If he is a boy it goes without saying that he will be circumcised in early infancy. A far more serious question, however, will arise a little later in both sexes—viz., should the appendix be removed as a matter of routine? When we remember that even now, despite all improvements in diagnosis and treatment, appendicitis is responsible for about 2500 deaths a year in England and Wales, a number which tends to increase rather than to diminish; when we reflect on the enormous amount of illness and suffering to which it gives rise in the thousands of cases which recover; when we know that the abdomen is rarely explored by any surgeon without the appendix being removed; when we realise how rarely the surgeon seems able to assert wholeheartedly and conscientiously that any appendix which he sees lurking life is really absolutely healthy, and when we find that no one apparently is ever the worse for its removal, is not the conviction irresistibly forced upon us that it would be infinitely preferable in all cases to remove it in early childhood, and so save thousands of lives and an absolutely incalculable amount of disease and anxiety? The mortality from such an operation, performed by surgeons who by constant practice had attained the highest perfection of technical skill, would be almost negligible.

ADVISABILITY OF UNIVERSAL COLECTOMY.

Should we, however, in the future be content to stop here? If preventive removal of the appendix was so much to recommend it, ought we not to consider the enormous diminution of disease and the great prolongation of life which should result from complete removal of the entire colon? Let us think over and weigh carefully the reasons for advising a step apparently so drastic. We have the highest surgical and other authority for stating that, owing to man's most unfortunate assumption of the erect posture, his large intestine tends to become one prolonged cess-pool, at any rate in a vast proportion of civilised humanity; that this intestinal stasis leads to the reduction of poisons and so to a chronic toxæmia which gives rise to degenerative changes in every tissue and organ of the body; and further, that owing to this auto-intoxication, many grave diseases, due to invasion of the body by micro-organisms, are prone to develop, which would not occur were the vitality of the tissues maintained at a normal level.

A Few Results of Chronic Intestinal Stasis.

Let us briefly note the actual morbid conditions and diseases which, in one or other of the above-mentioned ways, may, it is asserted, be produced as a result of chronic intestinal stasis. In the alimentary canal itself are pyorrhœa, all kinds of indigestion, ulcer, and finally cancer of the stomach. Incidentally, as a physician, I should like to take this opportunity of saying how much indebted I am to those surgeons who have pointed out the direct connexion between simple ulcer and malignant disease of the stomach, a connexion which physicians themselves might easily have missed, especially as it does not extend to duodenal ulcer. With deep regret I observed some months ago that Sir Bernard Spilsbury⁴ had ventured to make the almost blasphemous suggestion that microscopic appearances which really were due merely to regenerative changes in the margin of a simple cancer had actually been mistaken for those of commencing malignant disease. A suggestion which made me recall with a shudder that remarkable saline-fibroid formation in the arterioles, described

many years ago by Gull and Sutton, upon which most important conclusions were based, until it was shown that the hyaline appearance was due to the action of the acidulated glycerine in which the preparations were placed for examination. Returning now to changes in the intestine from intestinal stasis, we may enumerate duodenal ulcer, appendicitis, all forms of colitis, diverticulitis, volvulus, and finally malignant disease of the large intestine; also, of course, visceroptosis. Furthermore, it is the opinion of certain experts in tropical diseases that dysentery only becomes chronic in those affected by intestinal stasis, and it has been demonstrated that chronic amoebic dysentery can be frequently cured by relieving the latter.⁵ From the intestine infection may extend to the pancreas, leading to induration, inflammation, cancer, and diabetes; to the gall-bladder, giving rise to gall-stones and cancer, and to the liver, producing many diseases of that organ.

Turning to other parts of the body we find chronic intestinal stasis regarded as a cause of adenoids and enlargement of the tonsils, these often being followed by infection of the cervical glands; of exophthalmic goitre and other diseases of the thyroid gland, including atrophy, cystic disease, and cancer, also of Raynaud's disease and of typical asthmatic symptoms. In the kidneys it is said to lead to bacilluria and to inflammatory or degenerative changes; in the ovary to cystic disease; in the uterus to retroversion, to metritis or endometritis, and to cancer (in fact, it has been said, "If woman were not imperfectly drained the gynaecologist would not have been evolved"); in the vascular system to either increase or decrease of blood pressure, in the former case with atheromatous changes in the aorta, and all the various evils to which this in turn may give rise; high blood pressure with enlarged heart occurring mainly in men, low blood pressure and flabby heart particularly in women. In the nervous system there are described various forms of so-called "neuritis," sciatica, &c., headaches, sleepiness or sleeplessness, melancholia—culminating in suicide—or imbecility. The muscles waste and become flabby, so that round shoulders, lateral curvature of the spine, flat-foot, and knock-knee are apt to develop. Indurative changes in the breasts may go on to cystic or other forms of degeneration and eventually to malignant disease. There is loss of fat, and consequently marked alterations in the form and contour of the body, especially of women. The skin becomes pigmented, is very liable to pustules, and excretes an offensive sweat. The hair of the head is apt to fall off, and that on the cheeks, lips, and chin to develop to excess. A serious loss of accommodative power in the eyes is stated to develop, so that presbyopia is greatly hastened and the ciliary muscle weakened.

Coming finally to general infections, we are assured that "the presence of tubercle, except by direct inoculation, is . . . always preceded by that of auto-intoxication." This seems to be especially true of tubercle of the intestine and mesenteric glands; Addison's disease may likewise develop. Also rheumatoid arthritis (including Still's disease), like tubercle, is said never to be present except in association with auto-intoxication due to chronic intestinal stasis.

The Remedy.

Incomplete though this list may be, it is a truly appalling catalogue of the possible, or even probable, effects of this most grave, distressing, and common condition, worse even than the evils which a few years ago were attributed to uric acid, now regarded as but a harmless by-product of metabolism; such are the vagaries of professional fashion. It might well seem a simpler and shorter procedure to enumerate the diseases which are not due to intestinal toxæmia, but that, as knowledge increases, it may become increasingly difficult to say of almost any morbid condition that it cannot be produced in this way, either directly or indirectly. Anyhow the case against an organ

³ It may be desirable at this point to say that the writer hardly expects or desires all his subsequent arguments and conclusions to be taken altogether literally.

⁴ Proceedings of the Royal Society of Medicine, Section of Medicine, October, 1922, p. 25.

⁵ THE LANCET, 1922, ii., 1116.

which is apparently responsible for so many of the most serious and fatal disorders to which man is liable, becomes overwhelmingly strong. We may, however, fairly ask if there is anything to be said on behalf of the large bowel; any good reason for its existence; any mitigating or extenuating circumstances to set against the long indictment of its infamies and iniquities. Apparently there is not. In 1903 Metchnikoff wrote: "It is no longer rash to say that not only the rudimentary appendix and the cæcum, but the whole of the large intestine are superfluous, and that their removal would be attended with happy results." In 1902 Dr. Barclay Smith, of Cambridge, said: "The statement is perhaps a bold one, but I am convinced that the large intestine is practically a useless incumbrance to man." Finally, in 1912 we have the words of Sir Arthur Keith: "Every year the opinion gains ground that the great bowel, from appendix to rectum, has become, so far as man is concerned, a useless and dangerous structure." Not so many years previously the same statement might well have been made of the thyroid gland; at any rate, whether made or not, the idea was acted upon, with quite remarkable and instructive results. Of the thyroid it was urged that at least it added something to the external beauty of the human form, but even this poor excuse cannot be made on behalf of the colon. Can anything more opprobrious and degrading be said of it than to be compelled to call it a cesspool! Surely the case is complete for routine removal of this cesspool in any community which regards health as the first essential of happiness. Doubtless for a time there would be a certain percentage of casualties, but this would naturally diminish as a race of surgeons arose absolutely expert in performing colectomy, and the number of deaths from the operation would indeed have to be large to out-balance the enormous gain to mankind from the abolition of only a few of the maladies which have been attributed to intestinal toxæmia; picture, if we can, a world in which there were no diseases of the large intestine or appendix, no tubercle, no rheumatoid arthritis, and certainly an immense reduction in the cases of malignant disease. The late Sir Henry Thompson in one of his lectures on Diseases of the Male Genito-Urinary Organs observed that man paid a high price for his distinctive organ; with yet greater truth we may say that men and women alike pay a far higher price for the distinctive erect posture they have so presumptuously assumed.

Importance of a Supply of Oil.

At what age, by preference, colectomy should be performed I will not venture to suggest, but as some of the most important of the lesions to which stasis is said to give rise begin quite early in life—for instance, adenoids, enlarged tonsils, and abdominal tuberculosis—it is evident there should be no unnecessary delay in eliminating their cause, and Sir Arbuthnot Lane tells us he has performed colectomy with complete success very early in childhood.⁶ For conscientious objectors, or until the operation became thoroughly popularised, the public health authorities would probably enjoin the liberal use of paraffin, and in the long run it would obviously be a really economical procedure to distribute it to the population generally at the public expense. The immense hygienic importance of an absolutely unlimited supply of this invaluable remedy should, therefore, be remembered whenever the question arises of giving up our hold on the Mesopotamian oil wells.

ADVISABILITY OF UNIVERSAL TONSILLECTOMY.

In considering what further parts of the body it may be desirable to remove we come next to the tonsils and, of course, any adenoidal overgrowths with which they may be associated. We are, however, confronted with the difficulty that, as has already been suggested, a colectomy in early life might suffice to prevent any subsequent development of throat trouble. Experience alone can decide this, but in

view of the possibility that this operation might not become universal for a considerable time, or might not be performed soon enough to avert a condition which sometimes develops in the first few months of life, it is quite likely that tonsillectomy would be compulsory in a well-ordered state.

In the case of the colon it seemed desirable to call attention to the long list of diseases for which its presence is responsible, because the enormous variety and the universality of these evils is perhaps even yet not sufficiently recognised, but it is quite unnecessary to dilate upon the many troubles, local and general which result from adenoids and enlarged tonsils; they are fully known to us all. The actual question which confronts us is whether, under present-day conditions the tonsils are ever really healthy. I am bound to say, judging especially from what I learn from some of those who specialise in that department of the body, it seems so rare for anyone to have healthy tonsils that, for all practical purposes, everyone would be better without them. Their removal always seems to be indicated, usually at once, occasionally at the first convenient season. In former days the teaching as to the training of a boy was—"flog him when you meet him, for if he is not naughty now he will be very soon," so of the tonsils it may be said it is better to remove them forthwith, for if they are not diseased now they will be presently. Prevention is surely better than cure, and it is hardly possible to imagine the extraordinary gains which would follow these most unnecessary and disease-producing organs were always removed at an early age, the great improvement both in physical and in mental development, the absence of diseased cervical glands and all their consequences, the diminution in deafness and in ear diseases generally, in laryngitis, bronchitis, and other lung troubles, in gastro-intestinal disturbances, in many grave bacterial infections, not to mention the possibly lessened incidence of abnormal conditions in more distant parts of the body, resulting from some mysterious reflex effect of the unhealthy state of the naso-pharynx. It is possible that the frequency of rheumatic fever, with all its disastrous consequences to the heart in childhood, would be greatly lessened although I am obliged sorrowfully to confess, from considerable personal experience, that the most complete removal of tonsils and adenoids does not suffice to prevent recurrent attacks of rheumatism in children. Perhaps this merely provides another argument for prophylactic removal of the tonsils during the first two or three years of life, before any rheumatic manifestations have developed.

Doubtless in the model state of the future tonsillectomy would not be done under the present somewhat haphazard conditions, but in municipal hospitals into which children would be admitted in successive batches and in which they would be kept until their raw surfaces had begun to heal, so that certain undesirable results, of which we occasionally hear, would no longer be possible.

THE CASE FOR FALSE TEETH.

The next problem which the medical rulers of the hygienic state would have to consider would be that of the teeth. Again, as in the case of the tonsils, we have to face the possibility that removal of the "cesspool" would so far diminish the vulnerability of the teeth and gums to microbial infection that oral sepsis would become comparatively rare, and thus the standard set by Moses, as described in the Vulgate version of Deuteronomy, to which attention has recently been drawn by Mr. R. C. Ackland, President of the Section of Odontology of the Royal Society of Medicine, would be commonly reached; "Moses was 120 years old when he died; his eye was not dimmed, nor were his teeth loosened." Unfortunately, however, there are still many authorities who will accept intestinal stasis as an important factor in the production of pyorrhœa, some even who pervert the reverse the order of events and maintain that oral sepsis is a frequent cause of intestinal infection.

⁶ THE LANCET, 1922, ii., 1116.

Obviously on this point a fight to a finish is desirable, unless, indeed, as so commonly happens, each party has a certain amount of truth on its side, although, of course, it would be entirely contrary to human nature (scientific or otherwise) for the disputants in any quarrel to admit so disconcerting a fact. Anyhow I fear for the present we had better assume that colectomy might not solve the problem of the teeth. The difficulty, then, is aggravated by the fact that we have to deal with two sets of teeth. Those of the first dentition are, however, got rid of so soon that their diseases can be treated with comparative ease. It is with the second set that serious trouble begins, and the disorders and diseases attributed at the present time, on the strongest evidence, to oral sepsis, and especially to peri-apical bone necrosis secondary to dental caries, are almost as numerous and fully as varied and serious as those supposed to be due to intestinal stasis, in fact, to a considerable extent the two overlap. The result is that it is not easy for an unprejudiced and unbiased observer to decide whether man is more to be pitied for his misfortune in having inherited from his remote ancestors teeth or a large intestine. Without them both it would appear that he might have a reasonable expectancy of attaining a patriarchal age. One of the great questions of the future, therefore, must be whether it would not be far better to extract the second teeth at or soon after their first appearance, rather than have to remove them one by one at irregular intervals later on, or possibly simultaneously at one fell swoop, after they have given rise to an infinite amount of local discomfort or actual suffering, and, what is far more important, to infective conditions of other parts of the body, which before their cause is removed, may materially shorten life or at least produce permanent and crippling deformities. The question is really precisely similar to that of removal of the colon, whether prevention is not better than cure, whether, in fact, the comparatively slight discomfort of having to wear artificial teeth just a few years earlier than would otherwise be the case, would not more than be atoned for by an escape once and for all from the ever-increasing risks and penalties involved in trying to retain the permanent teeth (falsely so-called) for a few fleeting years.

There is, moreover, the added incentive that removal of the teeth involves practically no risk to life, whereas this can hardly be said at present of colectomy. If our dentists could find some way of preventing premature dental decay and oral sepsis the matter would, of course, be entirely different, but for the moment at any rate this discovery seems to be as far off as that of the cause of cancer. If the teeth are allowed to remain the great danger is that all unsuspectingly they may give rise to grave septic conditions; in fact, thousands of people to-day are, as has been truly observed, almost certainly nourishing a viper in their bosom. We know only too well that external appearances may be entirely misleading, that the teeth may look perfectly healthy, that all the outward indications of pyorrhoea may be conspicuous by their absence, yet that at their roots grave changes may be in progress, which constitute an ever-present menace to health and even to life, and that when this hidden source of disease is discovered the unhappy patient may hesitate too long before consenting to part with apparently healthy teeth.

It is now well known that no teeth can be pronounced sound until they have been subjected to a complete radiological examination. I wonder how many people there are, nearing middle age and with any considerable number of teeth left, who could pass successfully so severe an ordeal. It would certainly be intensely interesting if reports could be obtained of the condition of all the patients who in recent years have been rendered edentulous under medical or dental advice, as to the exact amount of benefit they have derived from the treatment. One meets now and then with ingrateful patients who persistently avow that their rheumatism, their pains, their nervous or intestinal symptoms are not one whit the better since the

complete removal of their teeth; occasionally they obstinately maintain they are not so well, at times even they tend to pass into chronic invalidism and spend their days, like Augustus mourning his lost legions, in unavailing lamentations over their lost members. Clearly they are the victims of our present haphazard system or want of system, whereby we are only too often content to await the full development of disease, instead of intelligently trying to prevent its onset. Doubtless before these patients were advised to have extraction performed, or at any rate before they reluctantly consented to its being done, under the scientifically combined pressure of family doctor, consultant, dentist, and radiologist, pathogenic germs had penetrated deeply into the tissues around the dental sockets, and, even if these had been well scraped out, an intractable infection had already occurred in the intestine, joints, or other distant parts. No, the case in favour of preventive extraction seems complete; the alternative of having the teeth of the whole adult population examined at least once a year, not only by a dentist but also by a radiologist, is hardly practicable, even in the most highly organised medical state. How much simpler and in every way better to prevent, by extraction of the teeth in early adult life, all the prolonged sufferings, the varied risks, and the grave perils which will be involved should the removal be postponed until it becomes obligatory in middle life, when perhaps irreparable mischief has already been done.

Time does not permit us to pursue further the fascinating problem as to what other parts of the body it might be desirable to remove, except just to mention the valuable suggestion that in women after the climacteric the uterus should be excised to abolish the risk of cancer in that organ, with a consequent saving of some 4000 lives a year in England and Wales; an equal saving of life from mammary cancer might also be effected by removal of the breasts about the same time. In elderly men the prostate would be removed as soon as there were any accumulation beyond a very few drachms of residual urine in the bladder. After all the removal of an organ nowadays need hardly be regarded as a serious matter, seeing how easily any resultant defects can be remedied by organo-therapy.

VACCINE TREATMENT.

We reach next the important question against what diseases should the child as he grows up be vaccinated? We may take for granted here vaccination against small-pox, always bearing in mind, however, that to secure complete immunity it will probably be necessary to repeat the operation at intervals of not less than ten years throughout life. A far more important matter is the desirability of systematic vaccination against the great group of the infective diseases of the respiratory passages—the common cold, laryngitis, bronchitis, broncho-pneumonia, acute pneumonia, and influenza. We must recollect that, so far as this country is concerned, we have in this group the most frequent of all diseases—the common cold—itsself relatively trivial, yet responsible for an enormous amount of inconvenience, discomfort, and temporary invalidism, and often giving rise to such serious conditions as middle-ear and sinus troubles, bronchitis, &c. It includes, also, two of the most fatal of all diseases in temperate climates—bronchitis and pneumonia—rivalled or surpassed only by cancer and phthisis, and it embraces also influenza, from time to time the most widespread and fatal infective disease. Could we abolish the deaths from this great group of diseases, the mortality rate in this country would be reduced by over 15 per cent. and by much more in those years in which influenza, but for preventive inoculation, would be epidemic. Judging from what we are told by the protagonists of vaccination, is it not reasonable to expect that in the future, given a sufficiently obedient population, these common and most fatal diseases may be brought under control by a well-devised blend of some half-dozen micro-

organisms—pneumococci, streptococci, *Micrococcus catarrhalis*, influenza bacilli, &c.—used as a vaccine, whereby immunity would be produced? As these diseases spare neither age nor sex, and are no respecters of social position, it follows that the use of the vaccine must be started in early infancy, must be continued throughout life, and its beneficent influence extended to the whole population; in other words, the prophylaxis must be carried out on thoroughly democratic lines. At what intervals the injections should be repeated I will not presume to say, certainly every few months at least, but probably more frequently. I see it stated of one anti-catarrh vaccine that three graduated doses should be given at intervals of seven days during the autumn, and for those who are very susceptible to colds or catarrhal conditions during the winter months a subsequent dose each month during that period. One of the incidental advantages, therefore, of the universal adoption of this preventive treatment is that it would at least do something towards solving the problem of unemployment. If the inoculations were started early in life, before pathogenic germs had already obtained a lodgment in the respiratory passages, the risk of any untoward sequel would presumably be negligible. From time to time one hears rumours that patients have become seriously ill with acute respiratory disease after, apparently even as a result of, the use of an anti-catarrh vaccine. Since, however, I know of no published record of any such unfortunate happening I can only conclude that these stories must be malicious inventions. It is so desirable, nay essential, that we should be informed of any undesirable results from new methods of treatment, whether preventive or curative, that it is obvious any practitioner meeting with such consequences would at once make them known.

We may no doubt anticipate that in course of time preventive vaccine treatment will become available for all serious infective diseases—measles, whooping-cough, scarlet fever, diphtheria and (most important of all) rheumatic fever—just as it is already available for the prevention of the typhoid group of diseases whenever required owing to the withdrawal or absence of those hygienic precautions which normally suffice to prevent their occurrence. It is to be hoped that a separate vaccination at short intervals, against each disease, would not be essential.

THE CARE OF EYESIGHT.

At the commencement of school life the eyesight of every child would, I need hardly say, be most carefully tested. We are just beginning to appreciate the extremely important symptoms, especially in connexion with the nervous system, which may arise from slight errors of refraction, errors which the child exhausts his nervous energy in trying to overcome, whereas were the lesion more gross the attempt at accommodation would not be made. It is becoming evident, if we are to trust some of our ophthalmologists, that all such defects, whether they give rise to obvious symptoms or not, should be corrected up to one-eighth of a diopter, and really it is not easy to see why the line should be drawn at that. Obviously, again, unemployment will benefit by the increasing demand for spectacles, for it would seem that a really perfect pair of eyes must be almost as exceptional as an absolutely sound set of teeth.

PSYCHOTHERAPY.

As the child grows older the question of psychotherapy will naturally arise. It would clearly be most unsatisfactory to free the body, at a considerable expenditure of time, trouble, and even discomfort or risk, from some of the many ills to which flesh is heir, and yet leave the mind a prey to all the neuroses and psychoses which at present so sorely afflict it, and to ignore the absolutely incalculable amount of misery, of domestic unhappiness, the blighting of promising careers, and the waste of life's opportunities to which mental disorders give rise. Fortunately the outlook

is a hopeful one, for what colectomy, tonsillectomy, tooth extraction, and divers forms of vaccination may be expected to do for our bodies, psychotherapy and the investigation of the unconscious mind promise to do for our minds. When we think of the amount of time spent in the treatment of patients we label as suffering from mental debility, nervous overstrain, hysteria, neurasthenia, psychasthenia, anxiety states, obsessions, phobias, stammering, and more serious conditions, the imagination hardly enables us to picture a universe in which they would all either be prevented or rapidly cured. We seem to be entering a new world of hope and promise when once we realise that by the discovery of a single simple word which excites some emotional reaction, or by the correct interpretation of a dream, a phenomenon hitherto regarded as too trivial to be worth consideration, we are able to unearth old experiences from the subconscious mind, and by bringing them to the surface start a process, which will lead to the complete release of the patient from fetters which for years may have hampered his activities or even completely crippled his usefulness.

How marvellous, for instance, to discover, owing to a patient getting blocked on the simple word "long," that all her troubles were due to her "longing" for a certain young man, whose offer of marriage she had rejected in haste, afterwards repenting at leisure of her refusal! How instructive to learn that a small schoolgirl's propensity for stealing pencils was stopped as a result of the discovery that a pencil symbolised to her the penis of her young brother, and that her youthful mind had been filled with envy and jealousy when she discovered that he possessed an organ of which she was devoid! What new hopes of successful treatment are raised when we read that a young man who had been stammering for several years was perfectly cured of his infirmity when he realised that his difficulty in articulation was worst for words commencing with "K," and that this was the first letter of the name of a former sweetheart who had jilted him in favour of another man! What therapeutic possibilities await us when we really understand that a woman's dream of being run over symbolised her desire for sexual intercourse—for is not a dream the disguised fulfilment of a repressed wish?—and that such apparently prosaic dreams as of walking up and down stairs, flying, or journeying in a train or other vehicle, are to be similarly interpreted! Doubtless in the future psychoanalysts will be attached not only to all our schools, colleges, and universities, but also to our Courts of Justice; in fact, the whole administration of Justice will be profoundly revolutionised as soon as systematic efforts are made to probe the unconscious minds of our criminals and so arrive at a more accurate estimate than is possible at present of their degree of responsibility. A very large number of men and women will have to be selected and trained as modern Josephs and Daniels, up-to-date successors of the magicians, the astrologers, the Chaldeans and the soothsayers who flourished at the court of ancient Babylon, specialists in the admittedly difficult task of the interpretation of dreams, for "not everyone can become an interpreter of dreams. It takes a skilled and patient specialist thoroughly to understand the process."

When we read that Freud has spent three years on a single difficult case of psycho-analysis, and that very frequently the analysis drags out through weeks or months, we realise what an immense number of practitioners will be required adequately to deal of these lines with the prevention and cure of all the disorders and functional diseases of the nervous system. Truly we need be under no apprehension as regard to any diminution in the demand for medical men in the coming Utopia, only they will be distributed differently than they are at present; the vast majority will presumably be either surgeons, radiologists, psychotherapists, or pathologists, with, of course, a large number of dentists to cope with the necessary extractions and the manufacture of artificial dentures.

TUBERCULOSIS.

Time will not permit any discussion of the methods which will be employed in the future for the prevention and cure of tuberculous disease, should it not be eradicated by the universal adoption of a timely colectomy. Two at least of our present customs, it is to be hoped, will be altered. The first is that of sending patients suffering from phthisis into sanatoriums, admirably and expensively equipped, keeping them for about three months and then letting them return to attempt to earn a living in the same conditions and amid the same surroundings as those under which they first contracted the disease. What reasonable probability is there that a man who in a particular environment has developed phthisis, will not relapse when, with lungs more or less extensively damaged, he returns to his old conditions of life, with diminished wage-earning capacity and consequently a severe handicap in the struggle for good food and good housing? The problem presented by the chronic or temporarily healed consumptive is far more than a medical one, it raises questions of the widest social interest and importance.

The other change we may look forward to is in our present practice of doing our best to develop tuberculous disease in children by allowing them to drink milk containing an unknown number of tubercle bacilli, and then when the result which might be anticipated actually follows, going to infinite trouble and expense to prolong the lives of these same children after they have been crippled, deformed, maimed, and scarred by tuberculous disease of bones, joints, or glands. Even if we cannot as yet entirely prevent the presence of tubercle bacilli in cow's milk, we can at least effectively destroy them by the simple measures of boiling or pasteurisation. A vast amount of progress will have to be made in our medical Utopia in connexion with the purification of the national milk-supply.

VENEREAL DISEASE.

On leaving school every member of the community will be transferred from the school doctor to the panel practitioner, so that continuity of medical supervision may be maintained. About this time the very serious question will arise as to what steps should be taken to prevent the young men, after they reach the age of puberty, from contracting venereal disease. Each one will receive full instruction with regard to his sex organs, their functions, use and abuse. He will be told that it is his duty to remain continent until such time as he is able to marry and that continence is the only absolutely reliable safeguard against infection. He will also be informed, however, that if he finds himself unable to follow these counsels of perfection, that at any time his natural impulses prove too strong or his self-control, it will be his duty to use certain chemical methods of prophylaxis, in regard to which he will receive detailed and minute instructions, and these personal admonitions will be reinforced from time to time by an intensive propaganda carried on throughout the urinals of the country. Necessarily there will be difficulties, which, however, should serve merely to stimulate the enthusiasm of those who have to overcome them. For obvious reasons it will be desirable for all young men always to have the disinfectants with them, just in the same routine way that we hope they would carry a pocket handkerchief; otherwise, sooner or later they will be wanting at the critical moment, and it is at least conceivable that their absence might not serve as an adequate deterrent to illicit intercourse. In a really well-drilled and well-trained community, fully instructed on the importance of health compared with mere freedom, the police might be authorised to demand from all unmarried men, at any rate after a certain hour daily, the production of their prophylactic packets, with punishment by fine or imprisonment of those failing to produce them. Until this ideal level of social hygiene had been attained, it might suffice—as these diseases would of course be strictly notifiable—to punish severely any man suffering from one of them

who could not prove that he had used the recognised methods of disinfection.

The use of alcoholic beverages would likewise become a matter of the utmost importance; if it were recognised that they tended to increase the frequency of promiscuous sexual intercourse and also, if the quantity taken were at all excessive, gravely to interfere with the prompt and efficient use of prophylactic remedies afterwards, the health authorities might find it necessary to follow the example of the United States and enforce complete prohibition. Again, a well-disciplined, well-instructed and docile population would undoubtedly welcome such a loss of personal freedom in the interest of the health of the community. I will not pause to discuss the interesting question as to what period of time would be likely to elapse before the entire nation, from the highest to the lowest, in overcrowded town and remote rural district alike, had been trained to carry out efficiently these precautions under all circumstances and conditions, but let us consider for a moment the really remarkable results which would have been achieved should venereal diseases thus be reduced to an almost negligible quantity.

Ever since the earliest beginnings of man's history probably one of his highest ambitions has been to be able to do wrong without suffering any evil consequences; hitherto his efforts have not been rewarded with any conspicuous measure of success, so much so that men have actually been taught that wrongdoing (what old-fashioned people called sin) would not go unpunished and that what a man had sown that he would also reap. Now at last arises a hope for mankind of release from this bondage, for if in one important department of life men may be enabled to transgress with a reasonable assurance of impunity, why may not relief come equally in other directions? Nor is this by any means the end of the wonderful vista which opens before us. Hitherto in nearly every form of wrongdoing not only has the individual offender often been punished, but other and perfectly innocent people have generally suffered also. The lamentable consequences of venereal diseases to innocent women and children constitute in fact one of the strongest arguments in favour of the use of prophylactic measures, but it would perhaps be difficult to find any form of evil in which other people may not suffer as much as and not uncommonly more than the offenders themselves. We have only to think of the far-reaching consequences of drunkenness, gambling, &c. In society as constituted it must be so, for as civilisation becomes more and more complex, so it becomes increasingly true that "no man liveth to himself," and the knowledge that this is so may be reckoned as one of the deterrent influences against evil-doing. A man may be prepared to "damn the consequences" so far as he himself is concerned, and yet be less reckless when the interests, the happiness, perhaps the lives of others, are also involved. Now, however, there opens before us the prospect, in at any rate one most important department of morality, of men being able to do wrong with a minimum of physical risk either to themselves or to any one else. It is as if some way were discovered, perhaps it will be, whereby, for instance, men should be enabled to take excessive quantities of alcohol, with all the enjoyment thereof, and yet wholly without any immediate disagreeable after-effects, either physical or mental: or as if they could recklessly indulge in all the excitements of gambling with a tolerably certain assurance of immunity from financial loss. The outlook is, indeed, far-reaching, and yet law has a disconcerting way of asserting itself, and it is perhaps premature to state dogmatically that one of man's greatest ambitions has been attained and that the old statement "Whatsoever a man soweth, that shall he also reap" has been finally rendered obsolete.

May we not, however, go a step further? It has been suggested that the abolition of venereal disease would actually improve morality by placing it on a higher plane, for if there were no risk of unpleasant consequences all the continent people would obviously

be acting from really high motives and not possibly from low and selfish ones only. It is said, for instance, and there is doubtless much truth in the statement, that a morality which depends only upon fear is not worth a great deal; that the man who abstains from promiscuous sexual intercourse merely because he is afraid of possibly contracting venereal disease, is after all a poor creature, hardly worthy of comparison with his more adventurous brother, who is boldly prepared to take risks. I am not sure that we should care for the logical development of this argument in other departments of life. We should probably prefer that a potential thief or burglar, should be deterred by the possibility of imprisonment, if no higher or better deterrent were available. We have at present hardly reached the stage when we should put the brave and adventurous thief, who boldly takes all risks, possibly even the danger, if he be an armed burglar, of being tried for his life, on a pinnacle of moral pre-eminence over the man who remains honest solely because, like the proverbial Scotsman who had tried both honesty and dishonesty, he has come to the conclusion that the former is the best policy, and is such a coward that he dare not incur the chance of disagreeable results.

The Dangers of Continence.

But the possible gains to mankind do not even end here. We used to be taught that self-control, self-restraint, &c., were virtues to be cultivated and encouraged, that they strengthened and built up character and so on, but is this really so? In the light of modern knowledge is it not rather a fact that self-repression, especially sex repression, may give rise to a great variety of nervous disorders and be responsible for a vast amount of illness and inefficiency? The benefits conferred by prophylactic packets are likely to be not merely negative, in protecting guilty and innocent parties alike from the dangers of promiscuous sexual intercourse, but also positive, by preventing all the evil consequences of repressed emotional instincts to which continent people are apparently liable if they do not succeed in completely sublimating their sex energy. Truly, if venereal prophylaxis attains the success hoped for by its sanguine advocates, it will lead to far-reaching consequences, more far-reaching perhaps than even its most enthusiastic supporters anticipate. With such wonderful potentialities for good, might not calomel and Condy's fluid, in an earlier stage of the world's history, have been justly worshipped in the temples of the gods as agents of almost untold benefits to suffering humanity?

ORGANOTHERAPY.

It may well seem that as a result of a scientific system of eugenics, of the elimination of intestinal stasis, of oral sepsis, and of tonsillar infections, with efficient prophylaxis of venereal disease, the almost complete extinction of tuberculous lesions, the effective control of the catarrhal diseases of the respiratory passages and of most of the common infectious diseases by a well-considered and thoroughly systematised plan of universal vaccinations, and, lastly, with the prevention or speedy cure of the functional diseases and disorders of the nervous system by skilful psycho-therapy, that comparatively few illnesses will be left prematurely to terminate man's existence, and that Metchnikoff's ideal will be attained (although, unfortunately, he himself failed to reach it) that, apart from congenital disease, poisoning, accident, and suicide, man will in nearly all cases die from a true senile decay. There remains, however, the possibility of premature degenerative changes in different tissues or organs, due partly to hereditary tendencies and partly to excessive strain unwisely thrown in earlier life upon special parts of the body. Now, therefore, as the final and crowning step in the prevention of disease and the prolongation of life we come to the part which in the future will be played by organo-therapy. The discovery of the functions of the thyroid and that those functions, after destruction of the organ itself, can be carried on satisfactorily by

preparations of the gland given by the mouth, has opened up vast prospects for the future which at present we are only beginning to envisage. The list of diseases which it is stated may be benefited by thyroid medication is a very long one; I will not attempt to enumerate them, but as a result of the remarkable success which attends its use, in certain morbid conditions, preparations have been made from nearly all the organs and tissues of the body, including the parathyroid, thymus, pituitary (anterior and posterior lobes), pineal gland, brain, spinal cord, sympathetic nerve ganglia, parotid, stomach, duodenum, small intestine, liver, pancreas, kidney, suprarenal, spleen, lung (as an indirect preventive against pulmonary tuberculosis in the young), testicle, prostate, ovary, corpus luteum, mammary gland, placenta, lymphatic glands, bone marrow, and red blood corpuscles. Each one of these is said to be definitely indicated in the treatment of a varying number of more or less diverse morbid conditions, functional or organic, serious or slight. In addition Prof. Swale Vincent tells us that heart disease has been treated by extracts from heart muscle, iritis by the subcutaneous injection of extracts of the ciliary bodies, and diseases of the joints by extracts of synovial membrane.⁷ We are, however, fast passing beyond the primitive idea of administering one of these organic preparations alone; we are learning the moral of the old story of the belly and its members, and are beginning duly to appreciate the fact that when one member, and especially one gland, suffers, all the members and glands suffer with it. The realisation of this introduces us to polyglandular therapy, with its enchanting vista of future possibilities. With some thirty different organic preparations to choose from, the possible combinations and permutations are practically limitless, and I note with interest that a recent panglandine preparation is said to contain parts of no less than 11 different organs of the body—assuredly a wide and practical recognition of the fact that when one endocrinous gland is damaged the whole glandular system is affected. Truly the elaborate mixtures which our medical forefathers were accustomed to prescribe become simplicity itself when compared with a tablet containing so remarkable a combination of substances; and we realise, too, how nearly they anticipated our modern therapeutic triumphs when they administered to their patients parts of various animals and insects, cockroaches, and the like. Incidentally one great advantage of polyglandular therapy is that should some of the ingredients fail to survive the destructive action of the digestive juices, a possibility which ought not perhaps to be absolutely ignored, there is at least the chance that others may be absorbed into the circulation, and so have an opportunity of giving rise to some of the potent effects with which they are credited; faith may be trusted to do the rest and complete the cure.

LETHAL CHAMBERS.

Finally, when the working years of life are past, men and women will be transferred to the care of a special medical department of the State dealing with old people, and with adequate pensions and amid comfortable and tranquil surroundings will await a peaceful ending to life, from painless senile decay. It is hardly to be expected, however, that the increasing infirmities of advancing years can be entirely avoided in all cases; it must still be true that "if youth is an intoxication, old age is the day after." Probably, if these infirmities became increasingly onerous, the question of lethal chambers, subject, of course, to strict medical control and adequate safeguards, would be considered.

DESPOTISM AND LAW.

Probably the greatest danger under a medical autocracy would be that of loss of freedom. A distinguished ecclesiastic once caused quite a grave

⁷ THE LANCET, 1922, ii., 319.

scandal by saying he would rather see England free than England sober. I think he was right, and I believe it would be equally correct to say we would rather see England free than England perfectly healthy. A despotism may be theoretically the best form of government if the ideal despot can be found, but he never can be, for human nature is so constituted that the mere fact of entrusting absolute power to an individual or a group of individuals soon renders them unfit to exercise that power over their fellow creatures. A medical despotism would be no exception to the rule. It is no sufficient answer to say that medical government would be necessarily in the best interests of the governed. A man's conception of what is best for his fellows may be absolutely disinterested and honest, his intentions may be wise and unselfish, but his conclusions and decisions may be erroneous, although the more convinced he is that he is doing right and that he is actuated by the highest and noblest principles, the more likely is he to become a tyrant. The exercise of uncontrolled power is almost always a cause of demoralisation, and "conscientiousness has to account for some of the darkest chapters of human history."

A second point we need to bear in mind is that health depends first and foremost on obedience to law—moral law and physical law, for they are of equal importance—and in the long run nothing which is morally wrong can be physically right. We speak of the laws of health, of the need for sufficient and suitable food, for pure drinking water, fresh air, adequate sleep, enough exercise, and so on; truly they all are essential; but there are moral laws, disobedience to which is eventually as disastrous to health and life, as is violation of the so-called physical laws. How many are the victims of lust, drunkenness, covetousness, making haste to be rich, and so on? We need to recognise that we live in a world which is under inexorable laws—moral and physical—from which there is no escape, try how we may, and that we can only be healthy and only be happy by learning what these laws are and setting ourselves steadily to obey them.

Lastly, there is a danger perhaps of dealing too much with secondary consequences rather than with primary causes. To attain as a community the highest possible standard of health we must have an intimate combination of socialism and individualism. We must strive for that fine civic ideal pictured in the stirring lines of Macaulay as applicable to ancient Rome—

Then none was for a party;
Then all were for the State;
Then the great man helped the poor,
And the poor man loved the great;
Then lands were fairly portioned;
Then spoils were fairly sold;
The Romans were like brothers
In the brave days of old.

—an ideal which doubtless existed only in the imagination of the poet, but which will have to be reached if ever we are to attain to the highest possible standard of national health. We need the harmonious coöperation of the whole community to provide those things which, under modern conditions of civilisation and especially of town life, the individual cannot provide for himself—adequate housing accommodation, good sanitation, pure drinking water, a sufficiency of fresh air, as good as environment as possible in shop, factory, and workshop, no excessive hours of work, efficient hospitals for cases of accident and serious or obscure illness—and a wage sufficient to enable a man to provide himself, his wife and a reasonable number of children with proper food, warmth, clothing, and recreation. Are we not, however, too apt to forget that all these things, however essential, are entirely insufficient without true individualism, without the determination of each man and woman in the community to obey the great moral and physical laws? A man may be placed in ideal surroundings and live under the best possible conditions, but he need not expect to enjoy good health if he does

not constantly strive to make the utmost use of his privileges, if he does not properly employ his money, his spare time, his opportunities; if he is immoral, if he drinks to excess, if he overeats, if he sacrifices physical exercise to ambition or to mere material prosperity. The old question ever arises, "Does the pig make the sty or the sty make the pig?"—in other words, is man the creator or the product of his environment? We have to recognise that for the attainment of ideal health and length of days both the man and his environment must be purified, uplifted, and ennobled. Just as in the political world it is useless, and worse than useless, to give democratic institutions to a people which has never been educated to use them aright, so in the world of health and hygiene it is equally useless to provide the most perfect surroundings and the most healthy external conditions of life for those who are too ignorant, too immoral, too careless, or too selfish to use them properly.

So we come back to the words of the wise man: "Let us hear the conclusion of the whole matter; fear God, and keep his commandments," that is, obey law, moral laws and physical laws equally. "for this is the whole duty of man." Thus, and thus only, not by constantly seeking short cuts to health, not by ingenious attempts to evade the results of law-breaking, not by merely tinkering with consequences rather than causes, can we ever hope to reach the ultimate goal of our ambitions and the final reward of our efforts—a genuine medical Utopia.

A CASE OF PERIARTERITIS NODOSA,

ACCIDENTALLY RECOGNISED DURING LIFE.

By E. ROCK CARLING, F.R.C.S. ENG.,

AND

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THE earliest record of this condition was published by Kussmaul and Maier in 1886. Since that time about fifty cases have been described, the subject of this present paper being apparently only the fifth case to be recognised during life, and, we believe, the only patient who has so far recovered as to be able to return to work.

Clinical History.

The patient, a male, aged 30, an engineer, was sent to one of us (E. R. C.) by Dr. G. V. H. Fairhall, of Ladywell, in July, 1921. He stated that for a month he had had severe pain in the right calf, which eased off if rested, but by night, if he had been about on it, the leg "felt as if ready to burst." He had got very much thinner, and now felt "very weak." Upon further inquiry he added that at first he had pain also in the right wrist, and had for a time "lost the use of his hand." His personal history revealed nothing more than "rheumatic fever" at 7 years, and a mild attack of influenza in 1919. He had not served in the army, and venereal disease was denied.

Condition on Examination.—He walked with a pronounced limp, due to restricted dorsi-flexion of the right foot. The right calf, which measured half an inch more than the left in circumference, was tense and tender. In the substance of the sural muscles was a "lumpiness," which sometimes felt like one mass and sometimes like several adjacent nodules without discrete edges. There was slight oedema of the ankle and swelling along the tendo Achillis. Nothing else abnormal was found. Urine normal. Weight, 11 st. 5 lb. (last known weight was 12 st. 5 lb., three months previously).

A provisional diagnosis of gummatous infiltration, or just possibly a sarcoma, in the sural muscles was hazarded. The patient was admitted to hospital on July 13th, for observation. He was found to have an irregular fever of from 99° to 101° F. On the 14th the Wassermann reaction was negative and it was decided to explore the calf and submit a portion of the swelling for histological diagnosis.

Operation.—On the 15th the calf was explored, and the "lumpiness" proved to be not a "tumour," but small scattered nodules of a fibrous nature about the smaller arteries, around which the muscle fibres contracted spas-

modically, increasing their apparent size ten-fold, and then presently relaxed. Two or three of these nodules were excised for histological examination. A good deal of oedema was found under the deep fascia, in and between the muscles and in the connective tissue around the tendo Achillis.

As a result of the operation the patient lost the pain in the leg, but the fever continued for a week or two and very severe pains set in in both arms, which for a time were exquisitely tender. A few subcutaneous nodules appeared on the forearm and about the elbow, but at no time were any detected in the painful muscles. The further course of the case was uneventful, the pains were gradually ameliorated and the fever subsided, and "health" was gradually restored. The patient left the hospital and returned to work, declaring himself "quite well." His weight was then 9 st. 1 lb. He reported for observation in September and October, 1921, and again in March, 1922. He was still "quite well," and had had no return of pains; his weight was 10 st. 2 lb., and although there was general muscular wasting, especially of the arms and shoulder-girdle, he seemed quite comfortable and was at work.

Pathological Features.

The "nodules" were subsequently examined by one of us (J. A. B. H.) and it was at once recognised that the case presented unusual features.

A paraffin section showed the whole of the adventitia of an artery of medium size to be intensely infiltrated with small round cells. This infiltration was not only referable to the actual adventitia but to the fat and muscular tissue in the immediate vicinity. Even fairly remote tissue showed infiltration, which shaded off the further one got from the artery in question. Not only was the adventitia infiltrated but the media and intima as well. The intima and sub-intimal tissues were thickened by this infiltration, or, perchance, by an actual hyperplasia of these tissues. Thus the lumen of the vessel was narrowed, and it is to this that one can assume the cramps and pain were due. At first I could not assign a definite name to the condition, for it did not resemble any of the types of "arteritis" with which I was acquainted. Prof. S. G. Shattock very kindly identified the condition as "periarteritis nodosa," saying that the condition was rare and that he did not think that he had seen a similar section before. In the section the infiltrating cells appear to be all of the small round cell and elongated fibroblast types, and polymorphonuclear cells were not observed. It seemed that they must have arisen from the adventitia and had spread inwards, and not vice versa.

Other investigations on the pathology of the condition were carried out and a brief record is made below of what was found.

The Wassermann reaction was negative, both before and after a "provocative dose" of salvarsan substitute. The red blood cells and the hæmoglobin showed nothing of particular interest, save a slight diminution in their respective values. The leucocytes, however, throughout our observations have shown an increase. Thus:—

—	Total leucocytes.	Polymorphs.		Monomorphs.	
		Neutrophil.	Eosinophil.	Large.	Small.
	per c.mm.	%	%	%	%
July 26, '21	18,000	71	1	4	24
Aug. 9 "	30,000	86	—	8	6
Sept. 23 "	18,000	68	2	3	27
Oct. 28 "	15,800	74	2	2	22
Mar. 18, '22	14,000	67	3	9	21

It is of interest to note that the highest count is that of August 9th, 1921, and that during this time the patient was having the very severe attack of pain in the arms alluded to in the clinical account of the case. A bacteriological examination (aerobic) of the blood made during this attack remained quite sterile. On one occasion, as a matter of interest, I made an Arnetz count of the lobes of the polymorphonuclear nuclei, and the result was as follows: 1 lobe, 38 per cent.; 2 lobes, 44 per cent.; 3 lobes, 18 per cent.; 4 lobes, nil; so that the count is "moved towards the left," and this, according to Arnetz, is indicative of some form of chronic toxæmia. As infection by worms (*Strongylus armatus*, &c.) is known in animals to be associated with periarterial and endarterial changes, leading in some cases (horses) to fatal multiple aneurysms, the feces of this case were very thoroughly examined on two occasions, both before and after santonin followed by a saline purge. No evidence of any worm infection was found.

Animal Experiment.—An experiment was made in order to confirm (or otherwise) the observations of v. Haun. For this purpose 2 c.cm. of whole blood of the patient (which had been prevented from coagulating by the addition

of a drop of sterile 10 per cent. citrate) was injected into the peritoneal cavity of a guinea-pig weighing 270 g. (Pig A). The injection did not have any immediate ill-effects, and the animal remained in perfect health till it was killed four months and two weeks after. Two c.cm. of citrated heart's blood from Pig A was injected into the peritoneal cavity of a second pig (Pig B), 2 g. of limb muscle of Pig A were taken under sterile conditions, and minced up with sterile sand and saline (5 c.cm.) and the final "mince" incubated for 24 hours. The supernatant fluid (about 3 c.cm. by this time) was injected into the peritoneal cavity of a third pig (Pig C). Pig B was killed three months later, but Pig C died from acute pulmonary congestion seven weeks later. In none of the pigs A, B, and C were there any lesions of the peritoneum, nor obvious lesions of muscles or blood-vessels. Pig C had only the pulmonary changes seen in this not infrequent incidental trouble of the animal room. The muscles and aortæ of these three pigs were carefully microscoped, and nothing abnormal was noted in



Endarteritis and periarteritis nodosa: from a drawing showing a typical cross-section.

the sections. We cannot confirm, therefore, the observations of v. Haun, who claimed that he had been able to reproduce the human lesions by injecting the patient's blood into guinea-pigs, and carrying on from the original series into a second series of pigs. We purposely allowed our pigs to live a long while after the experiment had been started, to enable such lesions as aneurysmal swellings, &c., to develop if there was the slightest chance of this occurring.

Literature of the Subject.

The literature is already extensive. Perusal of the most recent papers, which contain digests of the earlier ones, and to which references are given below, show that the cases resemble one another closely.

Age and Sex.—Most cases are in young men, from 22–42, but women are not exempt, and a case is noted in a man of 62.

Nationality.—German, Russian, French, Italian, and British names appear in the list.

Previous Illnesses.—Many patients had a clean bill of health; syphilis was frequently absent; for the most part such exanthematous or infective disorders as were recorded were long antecedent; no causal connexion was traceable.

Initial Symptoms.—The common initial symptoms are great weakness and pains in the limbs; loss of flesh going on to emaciation; colic and diarrhoea which may be bloody; painful nodules, intramuscular or subcutaneous, which, as with the symptoms, may be transient and recurrent. Oedema of the feet.

Diagnosis.—Hitherto recognition of the condition in life has only been made after a biopsy. The diagnoses offered before necropsy have been trichinosis, miliary tuberculosis, polymyositis, arteriosclerosis, neuritis, purpura, typhoid, myasthenia, acute pancreatitis.

Death.—Has usually resulted from uræmia or from asthenia following progressive emaciation, but also from other causes.

Blood Examinations.—These show a leucocytosis, sometimes with excess of polymorphs, sometimes transitional cells, sometimes monomorphs, and often a slight excess of eosinophils. Blood cultures, both aerobic and anaerobic,

which have been recorded, have generally been sterile. A staphylococcus and a streptococcus have been recovered, but both observations are admittedly open to doubt.

Urine.—Whilst sometimes normal, in many of the fatal cases nephritis has been the cause of death. A marked polyuria has been recorded.

Experimental Production.—Whilst Klotz and Lamb's results were negative, those of v. Haun, who injected blood from his patient into guinea-pigs, and inoculated emulsions of the organs of these into a second series, were lesions analogous in their gross appearances, in their situation, and in histology, to those characteristic in man.

Nature of the Disorder.

The disorder, seemingly a specific infection, is characterised in its early stages by an inflammatory infiltration of the adventitia of the smaller arteries and arterioles, which spreads to the media; this it breaks up by fibrinous exudate; then disintegrates the elastic lamina and invades the intima. The infiltration, though polymorphic in its initial stages, shows the succession of cell changes which are witnessed in those early reparative processes which lead to the formation of granulation tissue and eventual cicatrization. The intima, which is much thickened, shows sometimes a hyperplasia with stratification of its proper cells, such as is seen in endarteritis, but the thickening is to a large extent by granulation tissue which has appeared to many observers—and to us—to be an irruption from without, but it is right to say that the opposite direction—from intima outwards—is held by others to be the true course of the process. The results of the process, however initiated, are the formation of multiple aneurysms which either rupture with the formation of arterial hæmatomata; or thrombose and lead to infarcts or local necrosis, or degeneration in parenchymal tissues supplied; or cicatrize and recanalise and permit local recovery. The results to the organs are ulcers and hæmorrhages in the wall of the stomach and intestines, degeneration with or without infarction of the kidneys, liver, spleen, testicles, adrenals, pancreas, and heart muscle.

The characteristic picture at necropsy is of multiple aneurysms, some healed or healing, on the renal, hepatic, gastric, mesenteric, splenic, testicular arterioles, and those of the heart; occasionally those of the limbs, and rarely others. The viscera show the associated lesions that might be anticipated. Many of these aneurysms are as small as a grain of rice; the largest not bigger perhaps than a pigeon's egg. Attention has been drawn by several observers to the very similar disorder found in the horse, stag, calf, pig, and dog. In the horse the aneurysms, which are due to the larvæ of an intestinal worm, *Strongylus armatus*, variety *Sclerosomum bidentatum*, are found chiefly in the course of the anterior mesenteric artery, but occasionally in the visceral arteries, though apparently not in those of the limbs. The symptoms in the horse are very similar to those in some human cases—with severe colic, great muscular weakness, distress, and emaciation. It is a fatal disorder. The path by which the larvæ reach the walls of the arteries is not certainly known, but is probably via the adventitia and vasa vasorum. It is noteworthy that our patient's recovery followed upon intravenous injection of salvarsan substitute.

Note.—Since this paper was written Harris and Friedrichs (*Journal of Experimental Medicine*, 1922, xxxvi., 219) have transmitted the disease to rabbits, and shown that the virus is a filter-passer.

References.

- Kussmaul and Maier: *Deutsches Archiv für Klin. Med.*, 1866, i., p. 125.
 Baehr: *Proc. New York Path. Soc.*, 1919, N.S., xix., 131.
 Cameron and Laidlaw: *Guy's Hosp. Rep.*, 1918, lxi., 159.
 Spiro: *Virchow's Archiv*, 1920, cccxvii., 1.
 v. Haun: *Virchow's Archiv*, 1920, cccxvii., 90.
 Fraenkel: *Deutsche Klin. Woch.*, 1918, xlv., 87.
 Tschamer: *Frankf. Zeitschr. für Path.*, 1920, xxiii., 344.
 Wohlwill: *Berl. klin. Woch.*, 1918, lv., 94.
 Hoare: *A System of Veterinary Medicine*, ii., 280.
 Friedberger and Fröhner: *Veterinary Pathology*, i., 147.
 Harbitz: *Amer. Jour. Med. Science*, 1922, 143, 250.

THREE CASES OF PARAPLEGIA FOLLOWING INFLUENZA.

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F.R.C.P. LOND.

THREE cases of paraplegia following influenza have recently come under my care. Two were of recent occurrence, the third dates from the autumn epidemic of 1918.

CASE 1.—The patient was a motor mechanic, aged 35, whom I saw in consultation with Dr. W. A. Lewis, of Oswestry, on Feb. 21st, 1923. He had then complete flaccid motor paralysis below the ninth dorsal level, with loss of all deep reflexes, and loss of sensation to touch, pain, and heat and cold over the corresponding area. The bladder and rectum were also completely paralysed. The history given was that he had fallen ill a month previously with what was thought to be influenza and that his wife and children and other members of the household had also suffered from it. He complained of dimness of vision and was noticed to have some retraction of eyelids with some slight protrusion of eyeballs. He was only ill for about a week, saw no doctor, and was only away from work for three days. About two weeks later he was down with a second influenza-like attack, again associated with dimness of vision, and this time with severe headache. The next day, Feb. 15th, he complained of stiffness and weakness of the legs, but walked round the room with his wife's help. On the 16th Dr. Lewis found him completely paraplegic, with a distended bladder, of which he was quite unconscious. There was at first but little loss of sensation, but all deep reflexes were absent. Trying to get out of bed he had fallen and bruised his sacrum; this bruise rapidly developed into an extensive bed sore.

When seen on Feb. 21st he complained of a curious defect of vision, and was found to have double optic neuritis and altitudinal hemiopia, especially of the right eye, the lower half of the fields of vision being deficient. He had been delirious the last few nights, though his mind was perfectly clear by day. He was moved next morning into the Royal Salop Infirmary, but by the time he arrived there he had developed acute hæmorrhagic cystitis and a large sloughing bed sore. He lived for about ten days, during the greater part of which time his mind was clear during the day, but he was wildly delirious at night. His death seemed chiefly due to the huge sloughing bed sore. The cystitis was rapidly clearing up under treatment, but the paralysis remained unchanged.

The initial "influenza," the early eye symptoms, the relapse, the headache, the double optic neuritis, the intensely hæmorrhagic nature of the cystitis and the wild nocturnal delirium and sleeplessness with mental clearness during the day seemed to point to an encephalitis accompanying the myelitis and to render it probable that the disease was essentially the same as encephalitis lethargica, but that its stress had fallen upon the spinal cord instead of the brain.

CASE 2.—A student, aged 21, was sent to me from Corris, Merionethshire, by Dr. E. C. B. Ibotson. His illness began on Jan. 4th, 1923, as an attack of influenza, from which other members of his family were suffering at the same time. It commenced with a rigor and he had severe pain in back and hips; his legs were weak and he was unable to sit up. He rapidly improved, and on the 11th he went for a 12-mile walk. This proved too much for him; he returned with difficulty, somewhat collapsed, and had to be put to bed at once. Motor paralysis from the waist downwards rapidly supervened. For the first three days there was loss of control of the bladder, but there have been no micturition troubles since.

He came into the Royal Salop Infirmary on March 10th. He was then found to have complete flaccid motor paralysis of both legs from the hips downward, with the exception of the toes of the left foot, which he could move fairly well. There was no loss of sensation, and there was slight flexor response in both feet, but the deep reflexes were absent and there was marked wasting. No contraction was obtained with the faradic current in the affected muscles. There seemed, however, to be no tendency to bedsores. Since admission there has been no definite improvement of the paralysis, though the patient's general condition, which was very poor, is better.

The points of resemblance between this case and the first are obvious—viz., the initial "influenza" affecting other members of the household, the early improvement and relapse following upon over-exertion, the complete flaccid paraplegia, showing no tendency

to get better, and the involvement of the bladder. In the second case the illness has been far less severe, and its stress seems to have fallen entirely upon the spinal cord, no cerebral symptoms having been noted.

CASE 3.—The patient is a woman, aged 21, in whom weakness of the legs followed a severe attack of influenza in November, 1918, with little change since. She is able to walk, but soon tires, and the left foot especially droops owing to weakness of the peronei. The knee-jerks are very slight and the ankle-jerks absent, but she has a well-marked extensor response in either foot. The unchangeable nature of the symptoms and the complete absence of any of the psychical or other symptoms characteristic of disseminated sclerosis differentiate the case from that disease; the presence of extensor response and the symmetrical distribution of the paralysis render it unlike anterior poliomyelitis. I think there can be little doubt that it has been a case of myelitis similar in its nature to the other two cases.

Remarks.

The occurrence of three such cases, two of them dating from the beginning of this year, makes one wonder if other cases are occurring in sporadic form throughout the country, possibly in sufficient numbers

to constitute a mild epidemic. As the three cases seem to be of the same nature, and the first case in many respects resembles encephalitis lethargica, I am inclined to think that all three have been really cases of that disease and ought to be notified as such, and that there are probably many others like them.

Dr. F. G. Crookshank tells me that many such cases have been described by American, German, and Italian writers as spinal types of encephalitis lethargica; he quotes Hippocrates as describing an epidemic of paraplegia occurring in the winter months followed by epidemics of "burning fevers" in spring, summer, and autumn—such burning fevers having been in all probability influenza. One practical point emerges from these histories. In the first two cases the paralysis definitely supervened upon over-exertion too soon after the initial attack of influenza; it is evident that we cannot be too careful to prevent over-exertion whenever there are early symptoms of weakness in the legs or symptoms pointing to a possible encephalitis.

Shrewsbury.

Clinical and Laboratory Notes.

A CASE OF INTUSSUSCEPTION STARTING IN A LARGE MECKEL'S DIVERTICULUM.

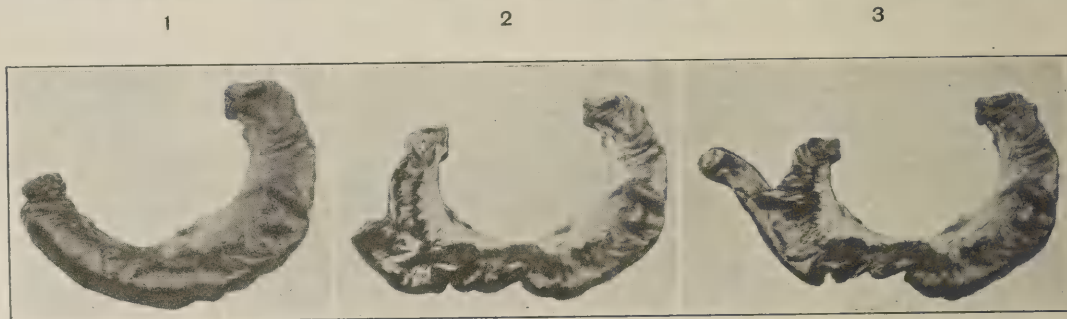
BY NOEL L. HOOD, M.D., B.C. CAMB.,
HON. SURGEON, YORK COUNTY HOSPITAL.

IN the case about to be described the patient was a boy, aged 8 years, apparently healthy, with no history of illness except a recently fractured elbow.

Present Illness.—For several years he had had occasional attacks of pain in the abdomen, almost always about bed-

and the minimum exposure of abdominal contents were main objects, and the lump was rapidly withdrawn from the abdomen and packed round. A very brief attempt to reduce the intussusception showed that this was unlikely to succeed, and that the condition of the gut was beyond reasonable hope if it did. The whole mass was therefore resected with a margin of healthy gut beyond at each end and an end-to-end anastomosis done. About 13 inches in all (after reduction) were removed, and the abdomen was filled up with hot saline and closed as quickly as possible. Recovery was uninterrupted and uneventful.

Specimen.—The intussusception was reduced after the operation with considerable difficulty and was in part definitely gangrenous. The involution began at the tip of a Meckel's diverticulum, where there was a dimple which persisted. It is an exceedingly pretty specimen (see illustration) and the complete intussusception could, with the aid



Portion of gut removed at operation, showing the intussusception: (1) removed, (2) partly reduced, and (3) wholly reduced, with the starting place shown by the dimple at the tip of the diverticulum.

time, which were relieved by a hot-water bottle. On Sept. 2nd, 1922, he walked round an 18-hole golf links with his father, had a hearty dinner on returning home, played ball in the garden, had a few ripe plums, and went to bed apparently perfectly well and in excellent spirits at about 8 P.M. Two hours later he woke with pain in the body and vomited. He was given some hot water, which he vomited, and then half an aspirin tablet and a teaspoonful of brandy. He seemed easier for a time, but had a bad night; on the morning of the 3rd he looked drowsy and ill and had severe pain in the right side, with a temperature of 99° F. Dr. E. O. Libbey, of Scarborough, was sent for, and saw the patient about 11 A.M. An enema was administered almost at once with a slight result, and about three-quarters of an hour later the patient passed a large, very offensive, motion with a considerable quantity of blood. Dr. Libbey saw him again about midday, found that a lump felt on his previous visit had not disappeared, and ordered immediate operation. I was sent for from York; pending my arrival the child was seen by Dr. J. Reid Dick, of Scarborough, and removed to a nursing home.

Operation.—I saw him about 4 P.M., and as the condition was obviously one of "acute abdomen" with an egg-shaped lump a little internal to the usual position of the appendix, and he was passing blood and slime at intervals, I spent very little time over any examination and operated at once. Seeing the child was not in a state to stand much, rapidity

of a long pencil, be reproduced, and reduced again by "milking" it back at will.

I have to thank Dr. Libbey for his prompt action and for an excellent anaesthesia, and Dr. Dick for very valuable and skilful assistance at the operation.

A CASE OF INTESTINAL OBSTRUCTION.

BY S. SUBBA RAO, M.B. MADRAS, M.R.C.S. ENG.,
MEDICAL OFFICER IN CHARGE, VICTORIA HOSPITAL,
BANGALORE, S. INDIA.

ALTHOUGH intestinal obstruction is fairly common, yet obstruction due to the formation of a complete adventitious sac by a process of chronic adhesive peritonitis is a rare condition. I have not found a case similar to the one here described in the surgical literature immediately available.

The patient was a woman aged 20 years, short, sparely built, and greatly emaciated. She had a history of frequent attacks of intestinal colic for over a year, and complained

that a few hours after taking food a round lump appeared in the right side of her abdomen, and moved all over the abdomen with a gurgling noise, causing excruciating pain. The attack generally lasted for an hour or two, and ended with vomiting. At first these attacks were few and far between, and the lump was small; but for the past six months they had occurred almost every evening, and lasted for longer periods. The lump grew steadily larger, and she had recently been unable to take any solid food for fear that the pain would increase. There was also a history of obstinate constipation.

Condition on Examination.—The patient was ill-nourished and anæmic. The only physical sign present was an ill-defined lump in the right iliac fossa, which felt much like a thickened coil of intestine; pressure over this produced a gurgling sound. Her troubles were at first attributed to hysteria, but a few days after admission I saw the patient in one of her periodical attacks of colic. It was a remarkable sight: a great coil of distended gut, almost as large as the tyre of a motor bicycle, was seen running obliquely across the abdomen from the right iliac fossa to the left lumbar region. There was marked visible peristalsis, accompanied by occasional gurgling. The abdomen was greatly distended and tympanitic to percussion, and the patient suffered agonising pain. A diagnosis of chronic obstruction was made, and exploratory laparotomy was decided upon.

Operation.—A median incision was made below the umbilicus and a small amount of clear serous fluid was found in the peritoneal cavity. A white glistening mass about the size of a large orange was brought out of the incision. It had a peculiar wormy feel, not unlike an intussusception. On tracing it, the lower end was found to be continuous with the last inch or two of the ileum, near its junction with the large intestine; and the upper end of this mass was found to be continuous with a loop of ileum, which was enormously distended and covered here and there with flakes of coagulated lymph. The mass, together with the dilated loop of gut, was clamped and removed, a triangular piece of mesentery being also excised. The remaining ends of the intestine were closed by the usual Czerny-Lembert sutures, and a lateral anastomosis was performed between the ileum and the ascending colon.

Recovery.—On the ninth day after operation sutures were removed. The patient made an uneventful recovery, and was discharged cured about a month after the operation; her general condition had greatly improved.

Specimen.—The mass removed was ovoid in shape, measuring 6 in. in its long diameter and 3½ in. in its short diameter, and was found to consist of a complete adventitious fibrous sac probably formed by the organisation of sero-fibrinous exudation. On carefully dissecting into the sac, it was found to contain five loops of small intestine closely compressed and adherent to each other, and measuring 4 ft. 2½ in. in length. The dilated and hypertrophied portion of gut above the adventitious sac was 3½ in. in width and 1 ft. 1½ in. in length. Thus a total length of 5 ft. 4 in. of ileum was successfully removed.

I am indebted to Dr. J. Jhirad for able assistance at the operation.

A NOTE ON THE TREATMENT OF CHRONIC ULCERATION OF THE LOWER EXTREMITIES.

By R. KELSON FORD, M.R.C.S. ENG.,

LATE OF THE BAPTIST MISSIONARY SOCIETY, TAI YUAN FU,
SHANSI, NORTH CHINA.

FEELING, as I do, that the line of thought followed below deserves considerable attention, I venture to quote a single case in its support. Chronic non-specific ulceration of the legs and feet is a condition too well-known to need description here. Treatment is usually very tedious, and the complaint is often a cause of despair to the sufferer, and of exasperation—or apathy—to his attendant, especially in the case of those patients who, finding it difficult to lie up for a long period, are the chief sufferers.

The bluish discoloration of the skin seen in the more stubborn of these cases is a sign of deficient blood-supply. It is in some instances a precursor of ulceration, and always a most potent factor in the delay of cure. Hence, any measures which tend to increase the circulation of the part may be expected to hasten cure very markedly. Acting on the theory that the arterial supply to the extremity is increased by dilatation of the artery consequent on paralysis

of the nerve plexuses in its walls, Leriche¹ practised the operation of sympathectomy. Removing a portion of the wall of the femoral artery to interrupt the vaso-constrictor fibres, he obtained peripheral dilatation in the leg. This effect started to pass off before the end of a week, and had ceased to be evident after a month. This method he used for such conditions as Raynaud's disease, trophic ulceration, prevention of gangrene, &c. Following on this, but desiring to produce a more prolonged effect, Mr. Sampson Handley² employed alcohol by injection into the walls of the femoral artery, and successfully treated cases of already established gangrene by this means. Few would deny that injection is simpler and safer than sympathectomy, and the results so far do not seem to show any advantage in favour of the latter. Further, sympathectomy was done for simple conditions, such as trophic ulceration; I would therefore ask—could not the method of vaso-constrictor blockage be applied to all forms of ulceration of the extremities? Alcohol, however, presumably paralyses these plexuses for at least a year (arguing from analogy—e.g., in the case of its employment for the treatment of trigeminal neuralgia), which is considerably longer than may be supposed necessary in the case of ordinary ulcerations.

In the following case, therefore, a local anæsthetic was employed instead:—

A Chinese male, aged 52, who had come two days' journey by cart for treatment, was admitted to the Mission Hospital, Tai Yuan Fu, early in September, 1922, suffering from chronic ulceration of the right ankle and dorsum of the right foot of several months' duration. The skin surrounding the affected area was bluish. The ulceration was superficial, though there was one area of about the size of a florin on each side of the ankle which was deeper. No history suggestive of syphilis was obtained.

The region was first cleansed by soaking daily in warm hypertonic saline solution for ten days, dry dressings being applied at night. During this period no improvement was noted apart from removal of crusts, discharge, &c. The common femoral artery was then exposed under chloroform anæsthesia, its sheath opened and its walls injected with 5 per cent eucaine solution at one point in each quadrant of its circumference. Less than 0.5 c.cm. of solution was used altogether.

The dressings applied before operation were left undisturbed until the fourth day after, when all superficial ulceration was found well healed; the skin was of normal healthy colour and the two deeper ulcers had markedly improved. They healed rapidly afterwards. The only complaint by the patient was of some tingling in the left thigh and leg on the day after operation. He was only under observation for a further fortnight, during which nothing untoward was noted, and was discharged as cured.

Remarks.

It might be suggested that the simple rest and cleansing fully account for this result, but I am strongly of opinion that it was much too striking to be disposed of in that fashion and did not occur in other cases treated only by these means. The ulcers were not merely dried, but were firmly healed, and the surrounding skin was uniformly of a healthy appearance. Never before have I seen such a rapid and satisfactory result as this, though it is regretted that the patient could not be followed up.

Circumstances unfortunately prevented repetition of this experiment. This case is reported, however, as it appears probable that such a procedure may prove of benefit in other cases of this description, and possibly also in those of varicose ulceration of the lower extremity. Should it appear desirable to aim at prolonging vaso-dilatation somewhat, the use of quinine urea hydrochloride (½–1 per cent.) in conjunction with eucaine or novocaine might prove effective, though some hold that it only acts on nerve terminals. In cases where there is no fear of gangrene, this method might prove of equal service in cases of bilateral affection, and even in cases of early gangrene it appears to me to offer chances, by reason of its transient effect, not available by any other means.

Portsmouth.

¹ Annals of Surgery, October, 1921.

² THE LANCET, 1922, II., 173.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY; SUB-SECTION OF PROCTOLOGY.

ULCERATIVE COLITIS.

A MEETING of this sub-section was held on May 9th, with Sir CHARTERS SYMONDS, the President, in the chair. Sir HUMPHRY ROLLESTON introduced a discussion on Ulcerative Colitis. His remarks appeared in full in THE LANCET of last week.

A Disease of Low Resistance.

Sir THOMAS HORDER said that one of the most striking features of the disease was its chronicity; by the use of the sigmoidoscope ulcers were still visible when all symptoms had disappeared and the disease was apparently cured. He therefore regarded the disease as a general one of low resistance to a certain infection, resembling in this respect pulmonary tuberculosis. As regards treatment, appendicostomy was required only if the patient were in a low state; if the disease was less severe much could be done by simple rest in bed in the open air. The Trendelenburg position should be adopted for a few hours every day in order to relieve the congestion of the colon which was one of the features of the disease. The diet should be as full as the patient could tolerate without causing diarrhoea. He found tonic intramuscular injections useful and employed vaccines as supplemental to this treatment, but without placing much reliance on the latter. Normal horse serum was also of use. There was a danger from over-energetic measures; in one case marked improvement followed the cessation of all treatment other than rest and dieting, where the patient had been going rapidly downhill under more vigorous measures. In all cases patients should be warned that a long convalescence was inevitable; three months should be allowed to elapse after the cessation of active symptoms before the patient was allowed to return to his ordinary activities.

Improved Results from Appendicostomy.

Mr. J. P. LOCKHART-MUMMERY pointed out that since the last discussion upon this subject, when the mortality of the disease was about 50 per cent., there had been a notable improvement in the results of treatment of the disease. Thus amongst 70 cases, which included all those at St. Mark's Hospital and in his private practice during the last nine years, the mortality was 15 per cent. The disease, which started in the solitary follicles from which ulceration spread to the surrounding mucosa, showed striking variations in severity; there might be a solitary ulcer or almost the whole surface of the colon, an area about half that of the body surface, might be involved. In many cases the disease arose from secondary infection with other organisms of a colon previously damaged by bacillary, amœbic, or sand dysentery. In one case a man who had previously suffered from several mild attacks of dysentery had, after drinking milk infected with streptococci, developed a severe ulcerative colitis from which he almost died. It was the variation in the organisms of secondary infection which was responsible for the differences in severity of the disease; the commonest were a paratyphoid bacillus and streptococci and staphylococci. The best results in treatment were obtained by appendicostomy, combined with the replacement of the organism of secondary infection by the Bulgarian bacillus, when the latter was possible; the method by which streptococci and staphylococci could be replaced had yet to be learned. A specially interesting type of ulcerative colitis was due to pneumococcal infection; two cases of this kind had occurred in his practice, both characterised by excessive hæmorrhage and a high temperature; neither case had pneumonia. Diagnosis could only be made by means

of the sigmoidoscope, and by means of this instrument it was possible to observe the natural healing of the ulcers. It was remarkable that healing was often complete; only in exceptional cases was there any appreciable scarring after the most severe ulceration. Stricture of the colon was therefore very rare, except as a sequel to the operation of cæcostomy. For this reason he preferred appendicostomy to cæcostomy in the surgical treatment; the former had the added advantage of being a procedure possible under local anaesthesia when the patient was in extremis. A catheter should not be tied into the stoma but passed as required, and the stoma should not be allowed to close for at least 12 months. As regards the solutions used for irrigating the colon, these should be non-toxic and preferably hypotonic to avoid dehydrating the patient, and they should be used at blood heat. Some of the silver salts were excellent, but silver nitrate should not be employed, as Mr. Lockhart-Mummery had seen a case of severe argyria from its use. Of all solutions the speaker liked best a hypotonic solution of sea salt, while solutions containing the Bulgarian bacillus were also excellent. Finally, the patient should be warned of the probability of recurrence from trifling exciting causes, such as chill.

Bacteriology of Ulcerative Colitis.

Dr. W. E. CARNEGIE DICKSON said that while the primary organism responsible for ulcerative colitis might be one of very many, such as the *Entamoeba histolytica*, *B. dysenteriae*, *B. paratyphosus*, *B. pyocyaneus*, the pneumococcus, streptococcus, or enterococcus, &c., the infection speedily became a mixed one. This was an essential point to be remembered in treatment by vaccines and sera. Thus in some forms of bacillary dysentery in which a vaccine of the bacillus could not be used on account of its extreme toxicity, the specific serum might be used with a mixed vaccine from the organisms of secondary infection. When treating cases of ulcerative paratyphoid infection with vaccines he had greater success from such mixed vaccines (including the patient's own strain of *B. coli*, streptococci, &c.) than from a pure autogenous vaccine of the primary organism. Originally he had laboriously isolated the various organisms and prepared a vaccine from the one which appeared to be the causal one, but now, by using a variety of culture-media, he was able to obtain a mixed bacterial emulsion closely resembling the mixture of organisms seen in a direct film. From this emulsion he made the vaccine. By this method he was able to grow all the organisms concerned in a few days, an advantage when a report was required as to the nature of the organisms, since the full scientific investigation, by isolating each individual organism, might well occupy weeks or months. Further, during this period fresh organisms, originally kept in check by others, often appeared. Most of these slowly-growing organisms were fortunately unimportant, although one such, the *B. pyocyaneus*, was, he thought, of considerable importance in connexion with colitis. This organism he had found in a number of cases of colitis often associated with severe ulceration and hæmorrhage, and in some of these cases, which clinically resembled paratyphoid fever, he had been able to obtain the organism from the blood and urine. Dr. Dickson emphasised the importance of regarding mixed vaccines as only one item in the treatment, which should include the eradication of a focus of infection in the teeth, sinuses, or the appendix, if such a focus could be found. The last source, the appendix, he believed often acted as a reservoir for the organisms after they had been driven out of the colon; a member of his family who had suffered from intermittent attacks of colitis for nine years had been cured by appendicectomy at the age of 10. It was interesting that cases of colitis commonly exhibited a leucopenia chiefly affecting the polymorphs; he suggested that the beneficial action of normal horse serum was due to its action in raising the white-cell content of the blood. In conclusion, Dr. Dickson suggested that the disease might be in some way connected with vitamin deficiency.

Ulcerative Colitis and Bacillary Dysentery.

Prof. L. S. DUDGEON, whose communication was read by Dr. A. L. URQUHART, referred to the divergence of views as to the identity or otherwise of ulcerative colitis and amoebic or bacillary dysentery. While Sir W. Hale-White believed the diseases were distinct, such an authority on dysentery as the late Dr. F. M. Sandwith held that ulcerative colitis was dysentery occurring in a population where dysentery was not endemic. Dr. Sandwith supported this belief by referring to the identity of the symptoms during life, and of the lesions as seen in the post-mortem room. Dr. H. P. Hawkins, in 1908, concluded that better bacteriological methods would lead to a solution of the problem, and for this purpose obtained scrapings from ulcers visible through a rectal speculum. From this material Prof. Dudgeon was able to isolate a Flexner bacillus from a case of ulcerative colitis, although repeated examination of the stools had been negative. Bacteriologists with experience of bacillary dysentery knew how difficult it was to isolate the organism from faecal material, so that Dr. Hawkins's method was of special value and had been adopted by Manson-Bahr and Gregg. Since the war six cases of sporadic so-called "ulcerative colitis" had yielded in one case a Flexner bacillus, in four a hæmolytic colon bacillus in almost pure culture, and in one case hæmolytic streptococci and a *Staphylococcus aureus*. He had not met with a case of ulcerative colitis from which an amoeba had been isolated or which had had a liver abscess. The lesions of ulcerative colitis always resembled closely those of bacillary dysentery; in the East during the war he had, however, seen similar symptoms and similar lesions in cases yielding *B. paratyphosus* B or C. He was therefore opposed to the view that ulcerative colitis and true dysentery were of necessity caused by the same organisms. In every case the infective agent could be determined by an investigation on the following lines: (1) Examination of the bowel by means of the sigmoidoscope. (2) If ulceration were present, material from the floor of the ulcer should be submitted to detailed bacteriological and protozoological investigation. (3) Repeated examination of the faeces. (4) Examination of the blood, more especially in relation to the presence of immune substances in the serum.

Value of Antidysenteric Serum.

Dr. A. F. HURST said that the first description of the sporadic ulcerative colitis occurring in England was published in 1875 by Sir Samuel Wilks, who pointed out that it was anatomically indistinguishable from dysentery. Saundby in 1906 and Hawkins in 1909 came to the same conclusion as a result of clinical and pathological investigations but without using the sigmoidoscope. In a report on an epidemic of "idiopathic ulcerative colitis," which resulted in 118 deaths in the Lancaster County Asylum in 1898, Gemmell expressed his belief that this condition, which had always been well known in asylums, was really dysentery. Vedder and Duval, working under Flexner in 1902, proved that epidemics of "dysentery" occurring in institutions in America were caused by the *B. dysenteriae*, and two years later Eyre showed that asylum dysentery in England was also caused by this organism. All attempts, however, to isolate the bacillus from sporadic cases had failed, though in a small number the blood had strongly agglutinated Flexner's bacillus. A diagnosis of ulcerative colitis could only be made with the sigmoidoscope. It was first necessary to exclude a growth beyond the reach of the finger. It was then necessary to decide what form of colitis was present, to ascertain the severity of the condition, and to exclude the possibility of amoebic dysentery, even if the examination of the stools had proved negative, for Dr. Hurst had seen a few cases in which this infection developed in patients who had not been out of England. An anæsthetic was very rarely required, as the passage of the instrument did not cause pain unless the anal canal was inflamed; in such cases a cocaine semple should be introduced a quarter of an hour before. If the sigmoidoscope was

carefully introduced under visual guidance without inflation and only as far as it went without difficulty, there was no danger, the few cases in which perforation had occurred having all apparently been due to its blind passage. In ulcerative colitis the mucous membrane was bright red and thick, the swelling being particularly obvious in the normally thin Houston's folds. It bled very readily when touched, and its surface was covered with blood-stained, purulent mucus. Superficial ulcers were invariably present, but in early cases they might be so small that they were difficult to recognise. More frequently they were of larger size and were sometimes so extensive that only small islets of mucous membrane were left, which might feel like small, flat polypi on rectal examination, the floor of the ulcers being mistaken for the surface of the mucous membrane. The ulcers were always superficial with irregular edges, and the thick mucous membrane was not undermined. The floor of the ulcers appeared greyish-yellow when the blood and mucus were wiped from their surface. In some cases the sigmoidoscope showed that the rectum or the rectum and lower part of the pelvic colon were alone inflamed, as normal mucous membrane was found higher up, but it was doubtful whether the proximal part of the colon was ever involved without the pelvic colon and rectum. Dr. Hurst had often watched with the sigmoidoscope the process of healing. When healing occurred new mucous membrane formed; owing to the superficial nature of the ulcers very little scarring occurred and strictures never developed. When the sigmoidoscope was passed after complete recovery from ulcerative colitis or bacillary dysentery, nothing more was seen than some very slightly puckered areas in the mucous membrane, which might be a little paler and smoother than normal. During the war Dr. Hurst had several opportunities of examining the colon with the sigmoidoscope in cases of acute dysentery, and since then he had examined a considerable number of chronic cases in the same way. The differences between the appearance of the mucous membrane in amoebic and bacillary dysentery were so marked that a diagnosis could be made with the sigmoidoscope of one from the other with a considerable degree of certainty. He was much struck from the first, however, with the fact that the appearance of the mucous membrane in bacillary dysentery was indistinguishable in life, as Wilks had observed post mortem, from that of the sporadic ulcerative colitis which occurred in England. On the other hand, in amoebic dysentery small, round, red elevations were seen on the otherwise normal-looking mucous membrane, corresponding to the collection of broken-down material in the submucous tissue caused by the invasion of the *Entamoeba histolytica*. In the centre of each elevation was a depressed yellowish ulcer, caused by the rupture of the submucous abscess through the mucous membrane.

In view of the very favourable effects Dr. Hurst had obtained in chronic as well as acute bacillary dysentery by the intravenous injection of large doses of the polyvalent antidysenteric serum of the Lister Institute, he decided to try the effect of the same treatment in ordinary ulcerative colitis. The results had been remarkably favourable. They were not, he believed, due simply to the use of horse serum, but were definitely specific. In a severe case under his care he tried the effect of large doses of ordinary horse serum; no improvement resulted, but the administration of antidysenteric serum after a week's interval had the usual rapidly favourable result. He generally began with an injection of 40 c.cm. intravenously; this was followed on consecutive days by injections of 60, 80, and 100 c.cm. The four injections were often sufficient, but it might be necessary to repeat the maximum dose two or three times. A considerable reaction often occurred; the patient's temperature rises and a profuse erythematous rash appears. The joints might become swollen and painful. But these symptoms generally only lasted a few hours, and never longer than a few days. Dr. Hurst thought they were less likely to occur if 15 gr. of calcium lactate were given three times a

day, the day before and during the days of treatment. No anaphylactic symptoms had been observed, even in patients who had previously had serum, but care was always taken to desensitize the latter by very small preliminary injections, and the same precautions would be necessary in any patient who was subject to asthma. He had used this treatment in about ten cases. Very rapid improvement had always occurred, though in one case in which appendicostomy had been performed some months earlier it was incomplete. A secondary streptococcal infection had apparently become grafted upon the original dysenteric infection, as complete recovery only took place after the removal of the teeth, which was followed by a temporary severe local reaction. An attempt to treat this patient with a vaccine prepared from streptococci isolated from the stools had to be given up owing to the violent reaction which followed the injection of only a quarter of a million bacteria. His colleagues, Dr. John Fawcett and Dr. J. A. Ryle,¹ obtained an equally satisfactory result in one case under their care. The treatment failed in two others, but in both of these they recognised the ulcerative colitis as being of a hypertrophic character quite different from the ordinary type, so that in all probability it was caused by a different infection. One of these cases died shortly afterwards from perforation, which rarely, if ever, occurred in the usual form of ulcerative colitis, and in the other an appendicostomy, which was subsequently performed, led to no further improvement. Dr. B. E. Jerwood² had also reported a case in which the patient was "incontinent, very weak, wasted, and quite determined to die," and in which rapid recovery followed treatment with antidysenteric serum.

In most cases the improvement was as rapid as that of amoebic dysentery with emetine and epidemic bacillary dysentery with intravenous antidysenteric serum. In Dr. Hurst's first case the patient was so ill when first seen that he advised an immediate appendicostomy. In spite of this the patient went steadily down hill, and a fortnight later, when the first injection was given, his condition appeared to be almost hopeless. But in three days the blood had disappeared from the stools; in five the sigmoidoscope showed that the mucous membrane was entirely free from ulcers, though still a little red, and in ten days the stools were normal and the mucous membrane was perfectly healthy, though the ulceration before the first injection was most extensive.

Dr. Hurst had discussed the details of treatment by rest, diet, albargin injections, and charcoal in the Guy's Hospital Reports for January, 1921, when he first described the results obtained with antidysenteric serum. They were of great importance before the introduction of the serum treatment, but recovery rarely took place in less than six months, and a year was often required. Until three years ago he was, therefore, inclined to advise appendicostomy as an additional measure in all cases of any severity. But since he had used large intravenous doses of serum he had not found it necessary to advise appendicostomy in a single case, and had only occasionally had recourse to albargin injections. He realised, however, that there must be cases, such as the two under the care of Dr. Fawcett and Dr. Ryle mentioned, in which the pathology was different and in which serum would be useless. In these the other methods of medical treatment and appendicostomy would be required. No case could be regarded as cured until the sigmoidoscope showed that the mucous membrane was perfectly healthy. It was then necessary to keep the stools soft by the use of paraffin or saline aperients for several weeks until the newly-formed mucous membrane had overcome its original vulnerability to mechanical irritation. He concluded with a plea for the more extensive use of the sigmoidoscope. It should no longer be regarded as an instrument for the proctologist or surgeon alone; it should be used by every physician, and to treat a case as colitis without first visually examining the

rectum and pelvic colon should be regarded as equally as absurd as the treatment of a case of tonsillitis without first looking at the tonsils.

A Surgical View.

Sir CHARLES GORDON-WATSON was much impressed by the results obtained by Dr. Hurst with antidysenteric serum, and thought that this form of treatment deserved a further trial. He agreed as to the identity of the lesions in ulcerative colitis and bacillary dysentery, and added that many cases of bacillary dysentery died during the South African War which might have been saved by the surgical treatment now employed for ulcerative colitis—namely, appendicostomy. This operation, if it were to be successful, must be performed early; there was still a tendency to call in the surgeon only when the patient was in extremis. In a recent case, for instance, a patient died of a perforation which occurred on the morning fixed for operation. The stoma should not be allowed to close too soon. As regards a primary focus, he had on one occasion found a subacutely inflamed appendix which he removed, thereby curing the patient, and in another case drainage of an antrum had cured a patient who had had repeated attacks. He also had seen severe reactions follow the extraction of two septic teeth, but cure in this case was much delayed. After a trial of many fluids he had found flavine the best for irrigation of the colon. On one occasion only had he found a vaccine helpful; this patient had had several attacks since 1911, when an appendicostomy was performed, and was going downhill in spite of reopening of the appendicostomy, when a mixed vaccine cured him for a time.

Mr. DOUGLAS DREW had given up appendicostomy since he had had a fatal case, and now always performed cæcostomy. He gave details of one case where cæcostomy had produced temporary benefit; a severe relapse occurred and he was persuaded to operate again with a view to performing colectomy, which, however, proved impossible owing to the condition of the bowel. He therefore brought the cæcum out at the middle line as a permanent colostomy with a definite improvement for two years.

The PRESIDENT remarked on the fact that whereas some cases were reported as cured by a certain form of treatment, others appeared to be refractory and were in no way benefited by the same treatment. He also commented on the success which had attended appendicostomy and the valuable results obtained by some of the speakers with antidysenteric serum.

Reply.

Sir HUMPHRY ROLLESTON, in reply, said that it would appear that the majority of cases of chronic ulcerative colitis were, in fact, cases of bacillary dysentery from which the organism could not be recovered. The physician regarded the disease from the point of view of a general condition, whereas the surgeon devoted his attention to the local condition. Since stricture was a rare sequel in this country and common in America it would appear to be possible that the disease existed in two varieties.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

A MEETING of this section was held on May 11th, Dr. R. J. REECE, the President, being in the chair.

Sir WILLIAM HAMER read a paper entitled *The Ultraviolet Viruses Considered from an Epidemiological Point of View.*

He said that the modern history of the subject dated from Buchner's demonstration in 1897 of an intracellular enzyme in the yeast cell, and pointed out that the germs of the bacteriologist might perhaps assume importance in disease mainly by reason of their being able under certain conditions to live in symbiosis with the generally speaking more deadly though more minute ultraviolet living particles. There were, in fact, important inter-relationships

¹ Guy's Hospital Gazette, 1923, xxxvii., 136.
² Ibid., 1921, xxxv., 292.

between the ultravisible germs and the bacteria. These had been compared to those between man and the tools he worked with; or alternatively to the partnership, on a far vaster though probably less important scale, between alga and fungus connoted by the term lichen. Two questions had to be considered: (1) were germs hitherto regarded as causal really primarily concerned with fermentations and with diseases, or merely concomitants—i.e., associated organisms; (2) what was the status, qua organisation, of the ultra-microscopic "enzymes"? In dealing with the first question, the speaker referred to Lord Lister's classical researches on the souring of milk, and quoted the remark that "it is far from impossible that there may exist ultra-microscopic organisms, as real, as distinct in structure, and as potent in their effects as is the *Bacterium lactis*." In these words Lord Lister remarkably anticipated the results of later research. He saw as in a glass darkly the phenomena now familiarly described as those of "sporting" or "mutation" in bacteria, and clearly discerned that ultra-visible particles might play a part in these. Passing to the second question, Sir William Hamer said that the experimental results suggested that to each germ must be assigned a very complex constitution qua enzymes; one enzyme might be represented by numerous particles in a condition of great activity and apt for rapid multiplication; another might be poorly represented by particles which were in an inactive or dormant condition. He outlined the present state of opinion respecting the physico-chemical status of catalysts and enzymes, and considered that it would simplify things if we boldly declared that many "organic catalysts" were really living organisms. He referred with approval to the late Prof. Minchin's speculations regarding the simplest forms of life and their origin. An outstanding difficulty of the epidemiologist, confronted with all the later developments of the germ theory, was that of explaining persistency of type in epidemic disease—persistency such as that displayed, for example, by measles or small-pox. In the case of ultravisible germs of epidemic disease, it might be that, while variability of type was favoured by association of the primary ultravisible organism with various satellite secondary invaders, there was an inevitable return, at appropriate intervals, to phases of influence which again and again repeated themselves. Just as syngamy prevented a species from breaking up into strains, so some equilibration between a primary influence and secondary influences encountered in the bodies of the hosts might bring about major waves of epidemic disease. De Vries had hinted at something of this kind in his "periodic mutations" of the higher plants, and analogous phenomena would at once suggest themselves to all those who had followed up Creighton's teaching with regard to influenza, scarlet fever, and diphtheria.

The paper was discussed by the PRESIDENT, Dr. J. A. ARKWRIGHT, Dr. W. MAIR, Dr. R. DUDFIELD, Dr. J. C. McVAIL, Dr. MAJOR GREENWOOD, and Dr. W. BUTLER.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on April 26th. Prof. J. HILL ABRAM, the President, being in the chair.

Mr. J. ST. GEORGE WILSON read a note on

Broncho-pneumonia in a Stillborn Fetus, Associated with Maternal Death.

The mother, aged 49, was a 14-para; all previous labours normal. The membranes ruptured 30 hours before onset of labour. The first stage occupied three hours. Forceps extraction failed. As the cord was prolapsed and pulseless the foetus was perforated, but there was still failure to deliver. The mother died five and a half hours after the onset of labour owing to shock. The foetus weighed 4.72 kilos; broncho-pneumonia was demonstrated in both lungs,

streptococci were found in the alveoli and cultured from the spleen. The reaction in the lungs was so marked that the inference drawn was that pneumonia commenced before the onset of labour, and it was surmised, in the absence of post-mortem examination, that foetal infection was a contributory cause, if not the sole cause, of the sudden death of the mother.—Dr. NORMAN B. CAPON stated that caution was necessary in assuming that micro-organisms found in a foetus which had died during labour were responsible for any pathological lesion discovered. This was especially true when perforation had been performed.

Mr. F. J. STRONG HEANEY read a short paper on

Cystoscopy and Pyelography.

He briefly reviewed the present position of cystoscopy and pyelography in the diagnosis of diseases of the bladder, ureters, and kidneys. He showed a series of lantern slides exemplifying the following lessons: 1. Cystoscopy by itself excludes the bladder and localises one or other kidney as the active septic focus in certain cases of chronic pyuria. 2. In the absence of tubercle bacilli in the urine cystoscopic examination in conjunction with clinical signs enables one to make a definite diagnosis of tuberculous kidney. 3. The appearance at the ureteric orifice in cases of intramural ureteral calculus alters when the stone remains a considerable time in situ. 4. In some cases of hydronephrosis it is not possible to demonstrate the condition by aspiration, whereas a pyelogram may successfully overcome the difficulties of diagnosis. 5. In cases of obstruction the appearances of the ureterogram or pyelogram vary according to the level of the obstruction. 6. A ureterogram differentiates between a phlebolith or mesenteric gland and a ureteral calculus. 7. The normal pyelogram enables one to exclude the possibility of a kidney condition in favour of other intra-abdominal lesions.

Dr. J. MURRAY BLIGH read a paper on Unexpected Death in Children. He discussed in particular its relation to lymphatism and the clinical signs indicative of this condition.

ROYAL MEDICAL BENEVOLENT FUND.

At a recent meeting of the Committee 25 cases were considered and £250 voted to 20 applicants. The following is a summary of some of the cases relieved:—

Daughter, aged 19, of M.D. Durh. who practised in Staffordshire and died in 1917. Applicant is a probation nurse at £40 per annum, but owing to a bad illness and an operation for appendicitis is unable to continue work until fully recovered. She asks for help towards paying convalescent home charges as her mother is unable to meet the expense incurred. Voted £5.

Widow, aged 37, of M.B. Vict. who practised in Manchester and died in 1914. Applicant has been able to support herself and daughter, aged 14, up to the present time, but she had an illness which increased expenses and also prevented her from earning. During the last 12 months she earned £100 by painting. Applicant is asking for a grant towards her daughter's schooling as she is in need of more advanced tuition. The Committee voted her a small grant to render her eligible for education help from the Royal Medical Benevolent Fund Guild.

Daughter, aged 53, of M.R.C.S. Eng. who practised in Manchester and died in 1876. She is a temporary clerk, but owing to illness has contracted debts and asks the Fund to help with her expenses. Voted £6.

Surgeon, aged 79, who was a house surgeon at a hospital in Wales for 12 years. He came to London during the coal strike and failed to secure an appointment. Stricken with paralysis he and his wife had to live on £100 they had in hand and then had to sell their belongings to enable them to exist. His wife is unable to earn anything owing to eye trouble and recently underwent an operation at Moorfields and has to be led about. The sole income is the applicant's Old Age Pension and £26 allowed by the Fund, and the R.M.B.F. Guild have supplied clothes.

Daughter, aged 43, of L.R.C.P. Lond. who practised in London and died in 1901. Has phthisis and is not strong. A friend at one time made her an allowance but this has now ceased. She had a post as lady help but has had to give this up and go into a sanatorium and asks the Fund to help with expenses. Voted £15.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, K.B.E., M.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

Reviews and Notices of Books.

ENDOCRINOLOGY AND METABOLISM.

Presented in their Scientific and Practical Clinical Aspects. By 98 Contributors. Edited by LEWELLYS F. BARKER, M.D. (Toronto), LL.D. (McGill). In five volumes, totalling 4770 pages. London and New York: D. Appleton and Co. 1922. £12.

WHEN von Noorden's great treatise on Metabolism and Practical Medicine was made available to English readers in 1907, it must have seemed unlikely to many of them that the latter part of the title would ever be justified, and yet the change which has since come over text-books in all branches of medicine bears evidence to the influence of that work and to its author's intuition. So, too, we believe that Prof. Lewellys Barker is correct in his surmise that the time is ripe 15 years later for the publication in reasonable compass of all the essential facts that bear upon metabolism and the internal secretions in health and disease. The editor and his associates have succeeded in so balancing their materials—*anatomical, physiological, chemical, experimental, pathological, and clinical*—as to have produced a book of value both to research workers and actual medical practitioners, and that within a readable compass of four volumes, for the fifth is taken up with references and indexes. The writers of the several articles are all competent workers in the subjects allotted to them; they have exercised sound critical judgment in the sifting of statements and claims, and they have presented a valuable compendium of established facts in which mere speculation finds little place. The clinical descriptions of disease which accompany the physiological and pathological summaries are a new feature in medical literature. The medical student has been trained in his preliminary scientific and in his hospital education to bring his physiological conceptions to the bedside, but has found the difficulty almost insurmountable of carrying physiological thought with him into actual practice. Hitherto, it has been difficult for the busy practitioner to correlate the advances in physiology with applied medicine and surgery. In these volumes the correlation lies ready to his hand.

Volume I. contains general considerations regarding endocrinology, including an historical survey of the subject, and deals with the thyroid and parathyroid glands and the hypophysis cerebri. Volume II. treats of the pineal, suprarenal, and thymus glands, the gonads, the mammary glands, placenta, spleen, liver, pancreas, salivary glands, stomach, and intestines, all considered as endocrine organs with possible internal secretions. The special anomalies of gigantism, dwarfism, and infantilism are described, and the inter-relationships of endocrine glands considered. Volumes III. and IV. are devoted to normal and abnormal metabolism. Volume V. contains, it has been said, the general index and bibliography.

Among the most interesting of the sections are those on the physiology and experimental pathology of the thyroid gland by Swale Vincent, and on hypothyroidism by Nelson W. Janney. In the first volume the whole of Section III., which deals with the parathyroid glands and particularly Lewellys Barker's able survey of the clinical syndromes due to disorders of these glands, are worthy of the attention of clinicians. In the second volume Benson A. Cohoe on clinical syndromes due to suprarenal diseases, and R. G. Hoskins on the inter-relation of the endocrine organs are of especial interest; and in Volume III. Ringer and Baumann on the carbohydrates and their metabolism and John R. Murlin on normal processes of energy metabolism stand out. In Volume IV. D. D. van Slyke writes on acidosis, W. T. Longcope and G. M. Mackenzie on hypersensitiveness and protein intoxication, and Rollin T. Woodyatt on the pathological metabolism of diabetes mellitus. Two curiously divergent accounts of pellagra by Ward J.

MacNeal and E. V. McCollum serve to illustrate both the uncertainty of our knowledge and the impartial attitude of the contributors.

It has been well said that endocrinology needs a leadership willing to admit the magnitude of its shortcomings. The compendium before us establishes such a leadership with true scientific impartiality. The survey presented will help the physician to distinguish fact from fancy in a field in which the imagination has recently been allowed free play. The sifting has been rigorous, and some readers may be disappointed to find how many of the advantages claimed for "organotherapeutic" preparations rest upon no solid foundation either clinical or experimental. So widespread is the faith in promiscuous endocrine therapy that the negative conclusions of some of the workers in this field deserve quotation. John T. Halsey submits to critical examination the administration for medical purposes of various preparations of animal origin in his chapter on organo-therapy and hormone-therapy. He admits the value of thyroid preparations in cretinism, myxœdema, and obesity, but is unconvinced by many of the claims made as regards mental diseases, epilepsy, deafness, asthma, nephritis, and blood dyscrasias. Even in skin diseases he regards the use of thyroid extract as of only limited value. Concerning parathyroid, he says "there are reports of its more or less successful use in tetany, paralysis agitans, eclampsia, epilepsy, and chorea, but it is only in the treatment of tetany that parathyroid therapy rests on a firm and rational basis." He is doubtful whether the anterior portion of the pituitary has yielded results justifying the enthusiasm of its advocates. Suprarenal extract has given brilliant results in the relief of asthma, and, of course, is invaluable as a local vaso-constrictor in ophthalmic and nasal operations, but further than this he not inclined to go. Halsey has never seen any effects, good or bad, follow the administration of parathyroid preparations in paralysis agitans. As to testicular extracts given by mouth, the evidence shows them at best merely of suggestive therapeutic value.

G. N. Stewart, writing on the significance of the suprarenal glands, holds that there is no foundation for a supposed rôle of epinephrin in reactions associated with the expression of the emotions. The same chapter contains the observation, "the elaborate theory of the reciprocal relations of the endocrine organs originated by Eppinger, Falta, and Rudinger gains no support from such experimental observations as have been made either upon the epinephrin store or the epinephrin output." Hoskins, writing on the relation of the suprarenal glands to circulation, mentions the general impression that epinephrin acts as a vaso-constrictor and raises blood pressure, and observes that vaso-dilatation is a characteristic, and, perhaps, the most significant phase of the vaso-motor reaction to epinephrin. But, in summing up, he concludes that "the most that can be definitely said at the present time is that epinephrin in neither a vaso-constrictor nor a vaso-dilator substance, generally speaking, but is either, depending upon the dosage employed, the organ involved, and the condition of the organism as a whole." He protests that in many pharmacological experiments with epinephrin concentrations grossly out of proportion to those to which the tissues are exposed under normal conditions were employed. The entire pharmacology of epinephrin demands reinvestigation. The same author comes to the conclusion that there is little or no reliable evidence that the thymus has any true endocrine function. A. S. Warthin gives it as his experience that the majority of cases of diabetes (all adult cases and a few young adults) present a chronic pancreatitis. He is, moreover, strongly of the opinion that latent syphilis is one of the most important causes of chronic pancreatitis.

Hoskins, referring to the lack of proof that the various endocrine organs stand in intimate functional relationship with each other, finds facile theorising to have been indulged in by numerous uncritical

writers. A diagnosis of "pluriglandular dystrophy" or "pluriglandular syndrome" is more often mere camouflage for ignorance. C. E. de M. Sajous remarks, "If the general practitioner will take a personal interest in accurate diagnosis and carefully controlled therapy of the diseases of endocrine origin, he will give help that is much needed at this time." Practical medicine stands in need of iconoclasm of this sort, but it must not be supposed that the bulk of this book consists of denial or disproof. There remains an enormous mass of new facts which have passed the test of critical examination, and a further collection of observations which, though still unproven, are suggestive. Certain modern work is especially well set out here. Lewellys Barker's chapter on the clinical syndromes due to disorders of the parathyroid glands summarises most readably all the modern observations on this subject. J. P. Simonds's survey of the pathological anatomy and histology of the hypophysis is remarkably clear and includes the original observations of the writer. Philip B. Hawk contributes a chapter on water as a dietary constituent. He has proved by careful experiment that the evil effects of drinking water during meals are not only hypothetical but non-existent. His conclusion is that it is better to drink water with meals than between meals, since it aids gastric digestion if taken with well-masticated food. The idea that water dilutes the gastric juice and hinders digestion seems to be quite unfounded. Woodyatt deals briefly and succinctly with the dietetic management of diabetes. His method of calculating the "optimal" caloric diets is one of the best we have seen, particularly his formula for the proportion of fats to carbohydrate and protein. "Insulin" had not been introduced when these volumes were published.

The whole is a work which throws light as much on the common diseases of medical practice as on the obscure, and goes a long way towards the incorporation of experimental medicine and physiology in the everyday practice of physic. The book is admirably printed and full of beautiful illustrations.

PSYCHOLOGY AND PSYCHOTHERAPY.

The Mind and What we Ought to Know About It. The People's League of Health Lectures. Oxford Medical Publications. London: Hodder and Stoughton, Ltd. 1923. Pp. 252. 6s.

THIS series of essays by leading medical men opens with a stimulating paper by Dr. Bernhard Hart on Primitive Instincts, in which he sets his readers to study their conflicts and prejudices; then it passes on to what may be termed the old psychology. Dr. R. H. Cole casts aside Prof. Sherrington's belief in the incommensurable nature of the worlds of body and mind in telling us that "these two aspects of the reflex arc—the mental and the physical—are practically identical," so one need not interpret as a cry of despair his view that "a mental state connotes some nervous change in the individual, and without a proper grasp of this connection I can conceive no rational explanation of the workings of the mind." Yet to explain the mental state, let us say, of Mr. De Valera in terms of nervous change would seem a hopeless task.

One is surprised to find Dr. Rows discussing memory with no hint of the transfer of psychological interest to the subject of forgetting, and the light which that throws upon mental processes. Habit and Adaptation, and Fatigue and Sleep, are quite simply handled by Dr. Macnamara and Sir Robert Armstrong-Jones respectively, though the latter's summing up is not clear. "Remember that it is not the subjective feeling of fatigue that you feel, although it is present, but it is the objective symptoms that come on afterwards that are felt, and when they come on they take longer to clear up," he says. This is rather bewildering; and surely Sir Robert Armstrong-Jones does not believe the story of the three boys who killed themselves by keeping awake. Sir Frederick Mott describes the reciprocal

influence of the endocrine glands and mental processes, and, illustrating his thesis by reference to war cases, concludes that "If doctors paid more attention to the mental state of their patients in relation to bodily disorders . . . Coué cult, Christian Science, and other forms of faith-healing would not have laid hold of the popular imagination so deeply." In the whole series the only reference to the work of Freud—and the public interest in his theories of the mind, whether it should be encouraged or not, is undoubted—is Sir Frederick Mott's bewildering allusion to a "Freudian doctrine" that "all dreams with fear are related to forgotten sexual experiences causing a mental wound"; surely this is not derived from the study of Freudian writers. Dr. W. A. Potts's lecture on Crime and Delinquency is a description of modern views and methods with a too brief account of the work already being done at Birmingham in the rational treatment of the criminal. This is a practical subject on which the public should be enlightened, and the lecture is in itself sufficient to justify the book. Dr. Tredgold, in his discussion of Mental Deficiency, is under the disadvantage of being unable to formulate proposals, though he points out the direction in which action might be taken and gives a general account of the varieties and causes of mental deficiency.

To put a subject like this before the public is inevitably a difficult task, but one trusts that the authoritative title of the book is not meant to be exclusive; there is quite a lot more we ought to know.

Conditions of Nervous Anxiety and their Treatment. By Dr. WILHELM STEKEL, Vienna. Authorised translation by ROSALIE GABLER. London: Kegan Paul. 1923. Pp. 435. 25s.

OF a series of seven volumes on "Disturbances of the Impulses and the Emotions" by this prolific writer the present volume is the first to be translated into English. Dr. Stekel says in the preface that the material could have been collected only on the basis of a private practice and that as a specialist he now seldom sees the same kind of material. This paradox is understood when we read his description of the anxiety attack and its equivalents, which include palpitation, paroxysmal tachycardia, nervous dyspepsia, pseudo-angina, hay fever, attacks of night sweating, vomiting and headache, migraine, faintness, and collapse, all of these being common in general practice. He maintains that every neurosis is caused by a psychic conflict, and denies the existence of the "actual neuroses" that Freud attributes to disturbance of sexual life, placing them beyond the sphere of psychotherapy. (It is surely a translator's error when we are told that Freud ascribes them to "sexual abuses.") He also gives examples to show that the anxiety attack can occur without sexual foundation. In the wealth of his clinical material Stekel stands almost alone, and if his facts are accepted his unreserved discussion of sexual details is justified. Especially interesting is his analysis of a "heart neurosis" (chap. xvii.), when he gives the patient's anamnesis and remarks that the doctor who listens to it "will come to the conclusion that cares, anxiety, worry, over-exertion and over-work are accountable for the terrors of the neurosis;" then follows an account of the analysis, which gave a picture totally different from that of the simple anamnesis. His analyses are not always profound, nor are his theoretical dissertations, but his cases are described with such fullness that the conclusions are often inevitable if his observations are accepted. But there is often a dogmatic—not to say slapdash—quality about the dicta which puts the careful reader on his guard. A case of gastric disturbance with vertigo is diagnosed "sausage poisoning" for the reason that "After a detailed inquiry she admitted having eaten a thin slice of sausage the previous evening, of which all the members of the household had partaken without harm" (p. 97); and it would be hard to crowd into a few lines more material for disputation than is found in the statement—lonely and unsupported—

that "the root of all desire to know is to be found in curiosity about sex, and a premature enlightenment of the children would certainly be injurious to the development of humanity" (p. 443). This defect is more regrettable because there is so much valuable clinical material and experiment recorded in the book, with practical observation that seems well supported; the author's remarks on epilepsy, for example, are cautious and at the same time original and stimulating, and are accompanied by a sufficiency of evidence.

The translation shows many blemishes. Concerning sufferers from heart neuroses we read: "Or else they have 'incipient calcination' which patients rightly look upon as a death sentence." And no wonder! Cyclothymia appears in three different spellings; "Jackson-epilepsy," "sinew reflex" for knee-jerk, and other departures from orthodox terminology are likely to receive criticism. But in spite of many defects the book is a useful addition to clinical psycho-pathology.

JOURNALS.

QUARTERLY JOURNAL OF MEDICINE.—The April number contains the following articles: The Sequelæ of Epidemic Encephalitis in Childhood, with Notes on the Prognosis as regards Complete Recovery, by Grace H. Anderson. This paper is based upon an examination of 38 cases in hospital in Glasgow. The chief points upon which stress is laid are the frequent occurrence of night wakefulness and excitability, and various psychical disturbances. Mental impairment was noticed chiefly in younger children and changes in disposition, invariably for the worse, in the older. The most troublesome habits were spitting and hyperpnoic breathing, for which no treatment was found effective.—The Cholesterol Content of the Blood in Anæmia, and its Relation to Splenic Function, by William MacAdam and Cecilia Shiskin. The cholesterol blood content was determined for varying periods in three cases of splenectomy performed for hæmolytic jaundice, and in one case of splenectomy for splenic anæmia. Twenty-five cases of anæmia of varying types were subjected to a similar investigation. It was found that after splenectomy an increase occurred in the cholesterol blood plasma content, whereas the excessive fragility of the red cells persisted in cases of hæmolytic jaundice. The relationship of the hypercholesterolaemia to the cessation of splenic function is undetermined. In the anæmias a slight degree of hypocholesterolaemia was found.—Quinidine in the Treatment of Auricular Fibrillation, by Archibald E. Clark-Kennedy. This contribution is based upon the results obtained by treating 45 unselected cases of auricular fibrillation with quinidine sulphate. In 82 per cent. a normal cardiac rhythm was restored. A preliminary course of treatment with digitalis was invariably given, and when no further improvement could be obtained with this drug quinidine was substituted. The usual dose was 5 gr. six hourly for 12 doses, the amount being gradually increased until "severe toxic symptoms or signs and symptoms of heart failure were observed." The simultaneous administration of digitalis and quinidine is not recommended. One fatality due to the quinidine occurred, in this instance there was no embolus, but the drug presumably had a toxic effect upon the myocardium. The rheumatic cases were most favourably affected by the treatment.—Variations in the Threshold in Renal Glycosuria, by George Graham. In renal glycosuria sugar is always said to be present in the urine, and the level of blood-sugar before and after a carbohydrate meal falls within the normal limits of variation. The author describes here a new type of renal glycosuria in which sugar is not always present in the urine, but only occurs when carbohydrates are eaten. The blood-sugar curve, however, is normal. Four examples of this class are recorded, which are considered to form a link between normal individuals and those affected with typical renal glycosuria.—Observa-

tions with the Hæmatocrit Volume-colour Index, by George Rossdale. The hæmatocrit is an instrument for recording the red-cell volume of the blood. The results obtained with whole blood were more accurate than when citrated blood was used. The volume-colour index is obtained by dividing the hæmoglobin percentage by the hæmatocrit percentage; it is thought to be of more value than the colour index, in certain cases in which there is an alteration in the volume of the red cells.—Endocarditis Lenta, by H. J. Starling. The chronic variety of infective endocarditis is considered in this article. The clinical aspects are fully discussed: they are based upon observations made upon 30 soldiers under treatment in 1917-19, and upon 22 discharged soldiers admitted to hospital from 1919-22. The infection is thought to be a primary one of the endocardium, due to a streptococcus of low virulence. Two excellent plates of the post-mortem macroscopical appearances of the heart are included in the journal.

JOURNAL OF INDUSTRIAL HYGIENE. March and April, 1923.—The first article, which is the second report of the Commission on Resuscitation from Carbon Monoxide Asphyxia, is contributed by C. K. Drinker and W. B. Cannon. It deals with the present practice in resuscitation from poisoning by illuminating gas, and the eventual course of patients poisoned by carbon monoxide. The authors report that gas companies in America are providing means for resuscitation; the Schäfer method is most advocated. The lungmotor and pulmotor are used, but are not strongly recommended. Most of the serious cases are removed to hospital, where records show a death-rate of 14.5 per cent. of cases admitted. The patients have a high average pulse-rate, and in 27.8 per cent. undue moisture in the lungs. The Commission is undertaking a series of experiments on the problem and will offer recommendations later.—An article on Ventilation in English Factories and Workshops in Hot Weather is provided by T. C. Angus, who has worked with Dr. Leonard Hill. He advocates the use of jet tubes for causing air movements. A stream of air driven at high velocity is passed through a jet well over the heads of the workers; its force is sufficient to set in motion a great volume of air around its path. The results obtained are illustrated by diagrams which are based on tracing the movements by smoke clouds.—Messrs. F. P. Underhill and B. R. Harris discuss the Influence of Benzol upon Certain Aspects of Metabolism. From laboratory experiments upon animals they conclude that benzol acts not only on the blood elements, but exerts a katabolic influence on body tissues as a whole. This influence is manifested by a sharp rise in creatine and total nitrogen, within a very short period after subcutaneous injection.

In the April number the therapeutic use and toxicity of picric acid is dealt with by C. T. Pack. Picric acid, trinitrophenol, is distinctly less toxic than trinitrotoluene. Two cases of dermatitis following upon the application of picric acid for burns are described. The dermatitis is ascribed to the employment of alcohol as a solvent for picric acid, which causes increased absorption. The resulting dermatitis resembles that caused by trinitrotoluene.—R. Williamson reports investigations into the effect of aniline-black dyeing on factory workers. Three yarn-dyeing works were visited and the workers examined. Changes in the blood were carefully estimated and are given in detail. Aniline was found to be associated with anæmia, distinguished by a decrease in total hæmoglobin, a decrease in the number of red cells, a lower colour-index, but with little alteration in the leucocyte count or in the differential count.—J. S. Owens describes his Jet Dust Counting Apparatus, which is probably the best method for estimating atmospheric dust yet produced. In it a given sample of air is made to impinge suddenly upon a cover-slip. The device ensures that any particles in the air adhere to the cover-slip, which can then be examined under the microscope. The mechanism of the apparatus is clearly illustrated, and microphotographs are given of results obtained by its use.

THE LANCET.

LONDON: SATURDAY, MAY 19, 1923.

THE MANAGEMENT OF PERITONITIS.

AT a recent meeting of the Hunterian Society, Mr. H. W. CARSON chose as a subject for the annual oration the evolution of the treatment of septic peritonitis. In this interesting survey, an abstract of which appears elsewhere (p. 1035), the slow advance of knowledge is strikingly shown. The painful emergence of truth from the realms of superstitious belief, hampered by authoritative pronouncements based upon faulty deductions from a too limited trial of newly advocated methods, provides a lesson which may well be taken to heart. That great master, DUPUYTREN, because of an unfortunate result in a single case, declared that the opening of localised abdominal abscesses should never be undertaken, and even SYME lacked the vision to perceive that he had evolved a general principle, and that results might be obtained in abdominal surgery as brilliant as those he was already getting in operations upon other regions of the body, by insistence on the most careful personal cleanliness. It was left for LAWSON TAIT to further the cause of abdominal surgery by establishing the first crude system of aseptic surgery. The operative treatment of peritonitis therefore had its beginning not quite fifty years ago, whilst all the important knowledge dates back for scarcely twenty years.

During this time certain problems have been solved, but others have remained subjects of controversy. The outstanding established facts are the great powers of resistance to infection of healthy peritoneum, the ability of this membrane to localise the disease when the source of infection has been timely removed, the existence of a critical point which corresponds with the absorption of a fatal dose of toxin, the tendency for the infection to travel upwards towards the diaphragm, where absorptive activity is greater than in any other region of the abdomen. The disputed point is really the measure of surgical activity which is indicated at different stages of the disease. All are agreed, however, that the chances of success are immeasurably greater when earlier treatment can be instituted. During the first few hours the only really essential thing is to remove the source of infection. Generally speaking, the earlier an inflamed appendix is removed or a perforation sutured, the greater the likelihood of a happy issue. But even here the surgeon can be too precipitate, for a patient whose perforated gastric ulcer was sutured within an hour of the catastrophe occurring has succumbed to the operative intensification of the extreme initial shock from which he was suffering, a condition of depression which usually passes off in two or three hours. A point which is much debated is the advisability or not of draining the peritoneal cavity after the primary source of infection has been dealt with. Very free drainage at one period was universally advocated, but we no longer see three or four tubes protruding from the abdomen of the convalescent patient. The most ardent advocate of drainage will scarcely ever insert more than one, and that into the lowest part of the cavity. But a large group of surgeons main-

tains that even this tube is unnecessary. This school relies solely upon the admittedly almost miraculous natural powers of defence. It is recognised by the advocates of the method that sometimes the process is limited but not eradicated, so that a pelvic abscess may require to be evacuated in one or two weeks' time, but they will not allow that after the removal of the infecting focus the likelihood of diffuse spread of the peritonitis is lessened by the insertion of a tube. The onus of the proof of this declaration should rest upon the advocates of the procedure, and until it is forthcoming the interests of the patient will probably be served better by retaining the drainage-tube, for the dissenters can point to cases where they believe life has been saved only by reopening the abdomen to allow of the exit of accumulating peritoneal exudate. Yet no one will deny that many abdomens may be sewn up with impunity in a way which would have been inconceivable some years ago. Irrigation of the cavity where the inflammatory process is diffuse has been given up by nearly all surgeons. It is impossible to remove the infective material by this means; on the contrary, irrigation forces this material into unattacked regions, prolongs the operation, and damages the peritoneal membrane. MURPHY's advice to "get in quick and get out quicker," is based on a sound policy.

When the inflammatory process is nearing the critical stage or when it appears to be localising itself, the question must be settled whether any surgical intervention at all is right. One school of surgeons strongly advises against any operative measures being taken, for they believe that the opening up of healthy tissue-spaces, and the possible further dissemination of the infective material may just suffice to turn the scale against the patient. Every effort should be made to assist the victim in delimiting the inflammatory process. This object is best achieved by securing absolute rest for the alimentary canal by starvation and the administration of opium, whilst saline is given by the rectal path in as large a quantity as the patient will absorb. Rectal saline is universally recognised as a very valuable measure in combating peritoneal infection, but the administration of opium is regarded as dangerous by some surgeons who, on the contrary, give aperients in small repeated doses. They point out that if in peritonitis the bowels can be got to act, recovery usually follows. But a movement of the bowels is simply an expression of the removal of the inhibitory impulses going to the bowel wall and is in itself a sign of the subsidence of the pathological process. To give opium with the object of abolishing peristalsis is an attempt to ensure for the inflamed area that rest which HILTON emphasised so strongly as necessary. Nevertheless, the greatest care must be taken not to overdose with opium and so substitute one pathological state for another. Pituitary extract, because it is a motor excitant of the bowel, is contra-indicated. It is against the teaching of pathology. Whether operation be carried out or not, the sitting posture has proved itself undoubtedly a valuable adjunct in preventing the spread of peritonitis to the upper dangerous area of the abdomen, so that from the moment when the diagnosis of peritonitis is made the patient should be propped up in this position.

THE VACCINIA VIRUS.

IN all work upon vaccinia and the preparation of vaccine lymph the elimination of the calf has been an end towards which attention has been constantly fixed. Recent studies of the properties of the active

principle of lymph have given reason to hope that this achievement is within measurable distance of being accomplished. The possibility of the propagation of the virus through rabbits' brains has been brought into prominence by A. MARIE,¹ who found that the intracerebral inoculation of this substance causes, in these animals, a form of encephalitis which terminates fatally in four or five days and, further, that it is possible to carry on the passage of such a malady from brain to brain in series. According to MARIE such a new habitat causes an increase in the virulence of the active agent towards the central nervous system, accompanied by a loss of virulence for the skin; ultimately a vaccine was obtained which had lost the power of causing vaccinia, which originally characterised it, but which was very active in causing the characteristic vaccinal form of encephalitis. The subject has been recently taken up with great thoroughness by C. LEVADITI and S. NICOLAU,² who have confirmed and extended the previous observations upon the neurotropic affinities of vaccine virus; their results differ from those already quoted in that even after many cerebral passages, in which it acquires a high degree of virulence towards the central nervous system, the virus still retains its affinity for the skin.

Such a neuro-vaccine, as they call it, consisting of the emulsified brain-substance of rabbits which have succumbed to the cerebral malady after intracranial inoculation, is sterile in so far as ordinary bacteria are concerned, and is still capable of setting up vaccinia when inoculated into the skin of susceptible animals; it does, however, appear somewhat less potent in this respect than the ordinary vaccine which has been cultivated continuously upon the skin (dermo-vaccine). This result is especially seen in the fowl, where the additional interesting fact emerges that although no eruption of vaccine pustules is observed, yet the animal becomes refractory to a subsequent inoculation with the dermo-vaccine. The neuro-vaccine has been used with success upon the human subject, in whom it produces typical vaccinia; an advantage is claimed over the usual calf lymph in that the emulsified brain is entirely free from septic organisms. In further studying the properties of their neuro-vaccine the authors show its affinity for the cutaneous system. When the virus is injected intravenously in the rabbit, an abundant crop of cutaneous pustules occurs, which is especially localised in any region of the skin which has been previously irritated by shaving and pulling out the hairs. They also adduce evidence that the germ localises itself electively in such portions of the body as are developmentally allied to the skin, as being products of the ectoderm, thus bringing the condition within the group of the neurotropic dermatoses which LEVADITI has laboured to establish. His work in this direction we have noticed previously.³ Thus, after intravenous injection, the virus can be detected in the skin, saliva, buccal mucous membrane, mammary glands, and brain; whilst showing little, if any, tendency to remain in mesodermal organs such as the blood, spleen, bone marrow, lymphatic glands, muscles, or kidneys. Previous injury seems to aid this localisation in organs for which the germ has a special affinity. This inter-relationship of the various structures of embryological fraternity is further emphasised by the fact that where the immunity

of one of them is acquired by inoculation a refractory state is simultaneously engendered in the others; the production of a crop of vaccine pustules on the flank of an animal will render its brain resistant to direct inoculation with the virus.

Such immunity would appear to be a localised tissue immunity, since no trace of anti-bodies is to be found in the blood, whilst the brain, in such a case, has the property of destroying the virus when mixed with it. In view of the fact that the immunity in vaccinia is of limited duration, the authors put forward the thesis that this resistance is a property residing locally in the tissues in question, which is developed in them at the time of the original vaccination and which is transmitted from cell to cell, becoming gradually attenuated and worn out as the tissues are constantly renewed. Such an immunity would therefore tend to disappear most quickly from those tissues which reproduce most rapidly. This theory is supported by experimental evidence which is extremely ingenious and interesting, though not, in our view, conclusive.

PSYCHO-PATHOLOGY IN THE CURRICULUM.

ANY proposal to add to the medical curriculum calls for special examination, and Sir GEORGE NEWMAN, in the Memorandum on which we commented in a recent issue, proposes additions which entail considerable encroachment upon the student's already well-filled table of subjects. Particularly in psychology and psycho-pathology does he call for instruction of a kind that has hitherto been almost entirely absent, and the schedule suggested by him—which appears elsewhere in this issue—is supported by his more detailed criticism of present deficiencies. Instruction in the psychoses has not kept pace with the progress of pathological, clinical, and therapeutic methods, and only a minority of the examining bodies include the subject in their examinations. The clinical side of the subject is generally taught in an asylum to which the student pays the visits necessary to procure the certificate of instruction demanded by his examining body; the patients he sees are already in a condition involving certification, and he is left without experience of the perplexing cases of early or doubtful insanity which will form some of his problems in general practice. The institution of the various diplomas in psychological medicine has led to the establishment of instructional courses such as those at Bethlem and the newly-opened Maudsley Hospital, so that post-graduate work on the subject is now available. In Birmingham, which already leads the way in the practical application of psycho-pathology to the study of the delinquent, a department of clinical psycho-pathology is now attached to the medical school of the University, and we may expect soon to see the subject included in the ordinary curriculum. From this example we may judge that the needs of the situation are already on the way to recognition.

Some of the scheduled proposals concerning the psychoses might be criticised on the ground that the practitioner is commonly relieved of the responsibility of treating patients when they have reached the stage of being certified, but the case of the psycho-neuroses is in strong contrast. There are few institutions which will receive, on what might be called "hospital terms," the sufferers from those psycho-neurotic

¹ A. Marie: *Comptes rendus de la Société de Biologie*, 1920, lxxxv., 476.

² C. Levaditi and S. Nicolau: *Annales de l'Institut Pasteur*, 1923, xxxvii., 1.

³ The Neurotropic Dermatoses, *THE LANCET*, 1922, i., 1106.

Annotations.

"Ne quid nimis."

YOUTH AND THE RACE.

ENCOURAGED by Dr. Addison, then Minister of Health, the National Council of Public Morals resolved in 1920 to investigate the problem of sex education in its relation to the care and training of adolescents. Dr. Addison was of opinion that parents generally had either shirked their duty to their children in this matter or were afraid to do it, while it was difficult for teachers to take their place. The National Council referred the consideration under six heads to a Commission of Inquiry, including such representative medical men and women as the late Sir G. S. Woodhead, Dr. Mary Scharlieb, the late Dr. J. W. Ballantyne, Dr. A. K. Chalmers, Dr. Eric Pritchard, and Dr. Charles Porter. The inquiry narrowed itself down to the development and education of young citizens for worthy parenthood, and even with this limited reference the volume of important and closely reasoned evidence is enough to fill a substantial book. Competent and authoritative witnesses representing psychology, education, and medicine, assisted the inquiry, and the report of the Commission is contained within the 26 opening pages of a volume,¹ the bulk of which contains the verbatim evidence. The Commission was soon satisfied by the evidence laid before it that instruction in regard to sex could not be shirked with due regard to the moral safety and welfare of youth, and that such instruction should be considered not as an irksome duty but as a privilege. Dr. Lyttelton put the age of 9 years as the time when boys should be perfectly able to understand the facts of maternity, and Miss Edith Cooper showed as the result of instructing thousands of mothers in Birmingham that the more precisely detailed teaching of later years should be prepared for in the infant schools. The Commission records its conviction that instruction in sex matters should be given whenever curiosity in regard to them appears or when there is any indication of the formation of bad habits. At the same time it recognised the serious mistake of isolating sex instruction from moral education generally and thereby giving undue emphasis to it. Chastity, the report wisely lays down, should be treated as only one element in the good life, and the child should not be led to take a greater interest in this than in any of the other functions of life. As is so often the case in the reports of commissions, the notes of reservation are instructive in showing the points on which interest specially centred. A group of five members regard it as urgently necessary for the State, through the Ministry of Education, to ensure that every boy and girl leaving school should receive definite biological and physiological instruction about the facts underlying sex and the sex relationships, the first step to attain this being to secure a supply of teachers equipped with the necessary knowledge. Another group of six members regard as desirable the prohibition of the sale of alcoholic liquors of whatever kind to young people under the age of 21, in order to diminish the risk of sexual excitement resulting from intoxication by beer. Dr. Chalmers registered his personal feeling that the report laid insufficient stress on the physiological inhibitions of infancy and childhood, which may so readily become a pathway to the exercise of reasoned choice in later life. To him the basis of education is laid when the intelligent mother teaches her infant to exercise little acts of self-control. The volume is worth having for these 26 opening pages in themselves, but its chief value resides in the store of wise experience contained in the minutes of evidence.

¹ Youth and the Race. The Development and Education of Young Citizens for Worthy Parenthood (being the fourth report of, and the chief evidence taken by the National Birth-rate Commission, 1920 to 1923). Sir James Marchant, K.B.E., LL.D., Secretary. London: Kegan, Paul, Trench, Trübner and Co. 1923. Pp. 378. 15s.

disorders which, as Sir GEORGE NEWMAN says, are responsible for much misery and invalidity. Nearly two and a half centuries ago SYDENHAM wrote, in his Epistolary Dissertation to Dr. Cole: "Of all chronic diseases hysteria—unless I err—is the commonest," and in this Memorandum almost the same view, though with an important addition, is expressed in modern terminology: "Pure psycho-neuroses, or bodily derangements coloured by a psycho-neurotic element, will provide the general practitioner of medicine with a very large proportion of his most difficult cases. Yet at present we teach the student nothing of the make-up of the normal mind; we give him no help in separating the false from the true in the wordy strife as to the nature, ætiology, and treatment of psycho-neuroses." This explicit and authoritative statement crystallises a body of opinion which has been steadily growing since the many thousands of cases of "war neuroses" revealed a defect in our medical training which necessitated the establishment by Government departments of centres—first at Maghull and later at Tooting—where men already qualified were taught the elements of psychopathology. The interest then roused has found a further field in the neurotic disorders of civil life, for experience has shown that the same mental processes are involved in what was erroneously called "shell-shock" and in the "nervous breakdowns" in times of peace. And, just as in time of war the maintenance of the health and efficiency of the soldier made imperative a training in this subject, so the chief medical officer of the Ministry of Health finds it imperative that for the maintenance of a high degree of mental health and capacity in the population the general practitioner should have received instruction in the ætiology, symptoms, diagnosis, treatment, and prognosis of the morbid mental states most commonly met in general practice.

Yet psycho-pathology remains a neglected child of medicine—it sometimes seems almost an illegitimate one, and unless an individual member of the teaching staff chances to take a live interest in the subject the student will leave hospital knowing not even the meaning of anxiety neurosis or obsessional state; these and other common disorders will remain, as before, unrecognised and untreated. Only one or two London hospitals provide systematic lectures, and little is heard of out-patient departments where students would be sure of receiving the necessary clinical instruction. On the other hand, the recent progress of both interest and knowledge in regard to the psycho-neuroses has been rapid; we may regard Sir GEORGE NEWMAN'S outspoken formulation of the position as in some degree an indication, even a result, of that progress, as well as an expression of the growing realisation of the clinical opportunities afforded by the psycho-pathological material to be found in our hospitals and in private practice.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A further series of post-graduate lectures, open to members of the profession, will be given in the house of the Royal Society of Medicine, 1, Wimpole-street, London, W. 1, during the session. The opening lecture on Wednesday, May 30th, at 5.30 P.M., will be given by Mr. Ernest Clarke on Tips in Ophthalmology for the General Practitioner, and others will follow by Mr. R. A. Hendry, Mr. James Berry, Sir Sydney Russell-Wells, Sir Henry Gauvain, Mr. Harold Chapple, and Mr. H. S. Souttar. A course of eight practical lecture-demonstrations on Gastro-Intestinal Diseases of Children, &c., will be given by Sir William Bayliss, Dr. Bernard Myers, and Mr. E. T. C. Milligan at the Children's Clinic, Western General Dispensary, Cosway-street, London, N.W. 1, from June 11th to July 5th, inclusive, at 5 P.M. A complete syllabus of either course will be forwarded on application to the Secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

the Socratic method being singularly productive where those who questioned were as competent as those who were to answer the questions. The preface foreshadows the publication later on in the year of the results of a further scientific investigation into the educational value of the cinematograph, conducted by expert physiologists under the chairmanship of Prof. C. E. Spearman.

OCTO-CENTENARY OF ST. BARTHOLOMEW'S.

Wolmer, a cripple, who had sat for 30 years in St. Paul's Cathedral asking for alms, in 1123 was borne in a basket before the altar of St. Bartholomew's and there stretched out his limbs and walked out well. The late Sir Norman Moore, historian of St. Bartholomew's, who tells this story, adds that in the same year Rahere began his priory, and founded the hospital upon a bed of gravel on the highest part of the open space of Smithfield—a site well and truly chosen. At the solemnity just 800 years later, which will open the celebrations at noon on Tuesday, June 5th, there will be a representation of the episode of Rahere returning from his pilgrimage to Rome and meeting Richard Belmeis, Bishop of London, through whose instrumentality Henry, King of the English, granted land upon which the hospital was built. The second episode will record the presentation, by King Henry VIII. on June 23rd, 1544, of a charter to the Lord Mayor and Commonalty of the citizens of London, restoring to the hospital the lands alienated on the dissolution of the monasteries. The provisional programme of celebrations which has now been issued gives the events which will occupy the remainder of the week. On Tuesday the Lord Mayor will entertain the delegates to luncheon at the Mansion House, and at 3 o'clock that afternoon they will present addresses to the Prince of Wales, as President of the Hospital, at the Guildhall. Bartholomew Fair will be opened at 1 P.M. on Wednesday by the Lord Mayor, and on that and the following afternoon tableaux by the Royal Academicians, Mr. Charles Ricketts, Mr. Charles Sims, Mr. S. T. Solomon, and Mr. George Harcourt, with music arranged by Sir Alexander Mackenzie, illustrative of events in the history of the hospital, will be shown in the Great Hall. On Wednesday afternoon there will be a reception at the Royal College of Surgeons, and old students will dine together at Merchant Taylors' Hall at 7 P.M. On Thursday evening a conversation will be held in the hospital and medical college. On Saturday afternoon a cricket match, Past v. Present, will be played on the hospital ground at Winchmore Hill, and the League of St. Bartholomew's Nurses will be at home to delegates. An exhibition of historical and scientific interest is to be held during the week within the hospital precincts.

THE VOLUME OF THE HEART BEAT IN MAN.

THE volume of blood put out by the heart at each beat is one of the most fundamental quantities in physiology, and among the most difficult to measure. The ancients speculated brightly with imaginary premises; when they found that their calculations from the quantity of blood in the body and the rate of the heart beat led them to the conclusion that the whole blood must go round the body several times a day they were frightened at their extravagance and compromised with the suggestion that it probably really went round twice in sympathy with the ebb and flow of the tides.¹ We realise now that blood pours along the aorta at a rate which few bath taps could equal, though we are still far from understanding the variations of rate and its smaller niceties as we should like to. The chief difficulty is that the available methods are indirect and become less and less satisfactory as the experience and skill of the subject diminish; the crucial determination is the measurement of the amount of oxygen in the mixed venous blood in the

right side of the heart, and no one has yet had the courage to show that this can be done by direct puncture with a needle and syringe. The main problem at present outstanding is whether the output is relatively constant or highly variable under ordinary conditions of life, and Prof. Yandell Henderson gives an illuminating discussion of the question in *Physiological Reviews*.² The argument that the output of the heart varies considerably has generally been somewhat as follows. In violent exercise the consumption of oxygen may increase to ten times the resting level; the pulse-rate rarely increases more than twice. Hence, during exercise either much more of the oxygen in the arterial blood must be consumed before it returns to the veins, or the heart at each beat must put out a good deal more than the resting volume of blood. It has been assumed that about one-third of the oxygen is used up in the tissues during rest, and if this proportion were doubled during exercise we could account only for a six-fold, as against a ten- or twelve-fold, increase in oxygen consumption during violent exercise, unless we allow that the heart's output at each beat is also about doubled. Henderson points out that recent knowledge is on the whole against this view, and urges that the "stroke volume" in a normal man is, within 20 or 30 per cent., a uniform quantity during all the activities of life. The mistake appears to have been that the difference in oxygen content between arterial and venous blood during rest has been exaggerated; the consumption is less than one-third and hence the resting circulation-rate is higher than has been supposed, and there is a large margin of oxygen consumption to be drawn on. An increase of two to three times in the pulse-rate and three or four times in the proportion of oxygen used will give the tenfold augmentation in the respiratory metabolism which is required during violent exertion. Thus in the beautiful experiments of Douglas and Haldane,³ Douglas at rest consumed 233 c.cm. oxygen per minute, and while doing violent work on the ergometer 1974 c.cm., an increase of 8.5 times; his pulse-rate rose from 53 to 137 (2.6 times), the percentage utilisation of his arterial oxygen from 19 to 64 (3.4 times), the minute blood flow from 7.5 to 18.7 litres (2.5 times), while the output of the heart at each beat remained constant at 135-136 c.cm. The important practical conclusion emerges from this that the circulation-rate is pretty nearly proportional to the pulse-rate in the changes due to rest and exercise. It remains to discover how far this holds in disease; whether, for example, the increased pulse-rate in fever means an increase in circulation-rate.

MEDICAL WOMEN'S FEDERATION: FIRST PUBLIC DINNER.

THE annual meeting of the Medical Women's Federation concluded this year with a highly successful dinner, to which a number of important guests were invited. Members of the Federation from all parts of England and Scotland sat down with their friends to the number of about 220. Lady Barrett, who presided with great geniality, stated that the membership of the Federation now amounted to about 800 and that it was affiliated to an International Federation, on which medical women of 19 countries were represented. The Earl of Onslow, who proposed "The Medical Profession," alluded to the opportunities for service now open to women, particularly in the sphere of the early treatment and prevention of mental disease. Sir William Hale-White, in response, spoke feelingly of the rewards of faithful medical work which were not generally of a material kind. Sir Sydney Russell-Wells, M.P., proposed "The Federation," reminding his hearers of the pioneer position of London University in the education of women, and of his experience that to be successful was to make the best use of disabilities; anyone could utilise opportunities. He spoke of the likelihood of the struggle for existence shortly becoming acute among medical women. Miss Ivens, in respond-

¹ *Ars Anatomica*, by William Salmond, 1714, p. 495.

² *Physiological Reviews*, 1923, iii., 165.

³ *Journal of Physiology*, 1922, lvi., 83.

ing, set out the main purpose of the Federation as to raise the standard of work among medical women and to promote active friendship among them, especially for the support of those in isolated places. Dr. Jane Walker proposed "The Guests" in anecdotal vein. Mrs. Wintringham, M.P., and Sir George Berry, M.P., responded. Mr. H. J. Waring proposed "The Chairman," suggesting to the Federation the appointment of an advisory body to weed out unsuitable entrants at the outset of their career. Lady Barrett, in responding, laughingly disclaimed on behalf of medical women the sagacity to foresee the successful practitioner in the girl leaving school. She and other women speakers refused to be pessimistic in regard to the outlook for the woman practitioner or her ability to earn her own living.

GONORRHOEA, EPIDIDYMITIS, AND STERILITY.

THE treatment of gonorrhoea and its complications in the educated man may be one of the most subtle problems that can confront a practitioner, and happy is one who can point to a series of cases where no permanent damage, physical or psychological, has been sustained. The widely disseminated knowledge of the aetiology and possible end-results of gonorrhoea, though it may be, and probably is, to the interests of the community as a whole, may complicate the position of the individual sufferer without bringing him much compensatory advantage. For though much is known in a general way, it is mostly impossible in the early stages even for an expert to inform a patient exactly where he is likely to stand as regards the two great horrors which may fill his mind with apprehension—infertility and sterility. Of these it is easier to prophesy hopefully as regards the former. The practitioner may nowadays with a fair degree of safety assure the patient that under careful treatment he will eventually be non-infective. The second remains a more doubtful proposition and depends largely on the success with which complications are avoided. The danger of sterility following an attack of gonorrhoea is, perhaps happily, less well known among patients, who do not realise that gonorrhoeal epididymitis is the commonest of all sources of sterility in the male. The figures published¹ by Benzler in 1898 are instructive. This observer followed the record of German soldiers with a previous history of gonorrhoea who had been married for three years or over, special attention being directed to a history of epididymitis. Of those who had escaped epididymitis, 10.5 per cent. were childless, of those who had had unilateral epididymitis 23.4 per cent. were childless, of those who had had bilateral epididymitis 41.7 per cent. were childless. It is clear that a great number of childless marriages must be due to a previous attack of gonorrhoea in the husband, and particularly to an attack complicated by epididymitis.

On page 1020 of our present issue Mr. Kenneth Walker sets out the main points of importance in treatment if inflammation of the epididymis, or at least such extensive fibrosis of its minute channels as may lead to sterility, is to be avoided. Physical problems, however, are less difficult to tackle than the psychology of the patient at the time of onset of the disease, at the time of the complicating factor of epididymitis, and at any future time when he may desire to marry. It is at these crucial moments, when the patient is suffering from the misery of self-reproach, that the practitioner may be called upon for information or reassurance, neither of which he is in a position to give without reserve. Here a word of warning may be in place. Many patients do not realise that the rigorous so-called "marriage tests" insisted on by careful surgeons are tests for infectivity only. It is unwise, however, to leave it at that and to allow them to marry, especially if they have had bilateral or even unilateral epididymitis, without a hint that they are less likely to be fertile than the normal man. The results of well-meant reticence on this point may be unhappiness or even recrimination

if the wife is subsequently examined and the probable cause of sterile marriage is traced to the unconscious husband. On the other hand, the practitioner who knows the temperament of his patient may fear to produce morbid questionings which may wreck two lives without due cause. In hospital practice it may be impracticable to do more than answer definite inquiries, but in private practice the suggestion of a fertility test would give opportunity for a discussion of the situation, even should no final verdict be reached. The best time to bring up the subject will hardly be the last of the three stages of anxiety to which allusion has been made. Rather let the first stage be chosen when, in the presence of personal physical discomfort and the possibility of infectivity, the menace of ultimate sterility seems, as indeed it is, remote. A warning uttered then could hardly further depress the spirit of one afflicted, and might help to ensure that rest in the early stages which Mr. Walker, in common with other authorities, regards as one of the most important factors in the prevention of complications which may lead to sterility.

EXPERIMENTAL CHOLECYSTITIS.

NEARLY 100 years separate us from the time when Louis first demonstrated the association of typhoid fever with lesions in the gall-bladder, but it was only in the "eighties" of the last century that experimental work on animals began to show us the true importance of such associations. These and subsequent researches are admirably summarised in a long essay¹ by M. G. Peterman, of the Washington University School of Medicine. In the same paper he gives an account of his own work, which confirms previous experiments and throws into strong relief certain important aspects of the problem of gall-bladder infections. His experiments may be briefly summarised as follows:—

1. Injections of cultures of *Staphylococcus albus* into the portal circulation of rabbits led to the appearance of the organisms both in the heart-blood and in the bile within three minutes of the injection.
2. The same result followed injection of the organisms into the veins of the ear; but if the cystic duct and neighbouring vessels were tied the results were negative. If, however, the cystic ligature was performed ten days before the injection the results were positive.
3. In another series of animals virulent organisms were injected into the ear veins. Seven or more days later four of the seven animals (rabbits) were found to have the organisms present in the bile and the remainder had an acute cholecystitis, although in none of them did the heart-blood now yield organisms.
4. A series of seven dogs were injected with cultures of *Staphylococcus aureus* into the portal vein, three of them were given a second injection, this time of *Streptococcus hemolyticus*, two to six days later. In all these animals the autopsy revealed cholecystitis affecting the wall of the gall-bladder and leaving the mucosa almost intact.
5. In the above animals an acute hepatitis was demonstrable in addition to the cholecystitis, and in four of them there was an interstitial pancreatitis as well.
6. In a series of rabbits a hemolytic streptococcus was recovered from the wall of the gall-bladder a few hours after injection of the organisms into the portal vein, and the same result followed injection of the organisms into the appendicular vein. In all such cases the liver and pancreas were also affected.
7. In one rabbit in which the organisms were injected into the walls of the appendix similar results were found.

Discussing these results Peterman lays stress on the lymphatic route of infection both in the production of cholecystitis and of its complications, hepatitis and pancreatitis, and argues that in cases of gall-bladder infections secondary to lesions in the bowel and portal system the organisms travel first to the liver and produce a hepatitis to which the cholecystitis is secondary. If this be the case it seems probable that the path from the liver to gall-bladder is via the lymphatics. He also calls attention to the relatively small degree of damage to the mucosa, as compared

¹ Arch. f. Derm. u. Syph., xiv.

¹ M. G. Peterman: Surgery, Gynecology, and Obstetrics, 1923, p. 522.

with the other layers of the wall of the gall-bladder in cases where that organ has been removed for inflammatory disease in human subjects, and finds in this confirmation of his view that such cases are examples of infection via the lymphatics from the liver. We notice that in this essay the author attaches considerable importance to the work of Rosenow who claims² to be able to produce specific lesions in rabbits—appendicitis, cholecystitis, gastric ulcer—by injection of streptococci recovered from abscessed teeth, or similar lesions in human subjects with such diseases. It is perhaps significant that this dramatic work, which was published in 1915, has as yet received no sufficient confirmation, and it is but fair to point out that without some such confirmation of the origin of such infections we remain very much in the dark as to the true nature of the pathology of cholecystitis and its complications.

PITUITARY SECRETION.

IN a contribution to the current number of the *Journal of Physiology*, Prof. W. E. Dixon deals with the conditions which cause secretion of the pituitary gland to meet the needs of the animal economy. Anæsthetised dogs were used; tracheotomy was performed, the blood pressure recorded, and all injections were made into the right femoral vein. The cerebro-spinal fluid was collected from the subcerebellar cisterna. The normal cerebro-spinal fluid showed every known chemical and physiological action of pituitrin, although the amount of this substance in the fluid varies greatly. A very large number of negative experiments was obtained; no form of stimulation of sensory nerves or of vagus and sympathetic in the neck caused any change in the secretion of the pituitary, and the inhalation of oxygen and carbon dioxide was likewise without effect. Certain drugs—e.g., alcohol, chloroform, urea, caffeine, histamine, adrenalin, several alkaloids, and glucose were injected or given by inhalation, all with negative results. Preparations of the posterior lobe of the pituitary injected into the general circulation caused pituitrin to appear immediately in the cerebro-spinal fluid. What purpose the pituitrin serves in the cerebro-spinal fluid is not clear, but any excess rapidly disappears. An excess in the blood is absorbed by the gland and some of it reaches the cerebro-spinal fluid; an excess in the cerebro-spinal fluid is excreted rapidly into the blood. The pituitary gland secretes into the cerebro-spinal fluid; pituitary extract injected into the circulation causes the gland to secrete, and when it is injected into the cerebro-spinal fluid it rapidly causes the ordinary systemic effects by passing into the general circulation. A balance is struck between the amount in the blood and the cerebro-spinal fluid. Many animal extracts were tried, and it was found that ovarian extract specifically excites the gland to secrete. The effect is immediate and lasts only two or three minutes. The active substance is not in the corpus luteum. Duodenal extract causes a secretion after one hour, but neither so much nor so constant as that caused by ovarian extract; the effect, however, is more prolonged. Some ingenious suggestions, hinging round the fact that the pituitary is a remnant of a gland once secreting into the alimentary canal, are made, so that it is perhaps not extraordinary that its secretion should be associated in some way with the functions of the alimentary canal. Pituitary extract increases tone in the small intestine, and diminishes tone in the large intestine.

THE LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE libraries of the New World continue to flourish, and the Library of the College of Physicians of Philadelphia ranks among the most prosperous. The total number of volumes in this great collection now numbers 136,489. During 1922, 6430 volumes were received, in addition to 10,418 pamphlets and 16,016

numbers of various periodicals. Donors in 1922 numbered 412, who between them have made 955 distinct presentations. The library is especially famous for its incunabula, of which it possesses 316 volumes. A score of works, some wellnigh priceless, have now been added, and these include the very early "Zophilogium" of Jacques Le Grand, printed by Rysch at Argentoratum (Strasbourg) in about the year 1470. This is the editio princeps of the once famous work, which Caxton translated into English under the title "A Book of Good Manners." Other very early books are the "Expositio Librorum Naturalium" of Aristotle, printed by Valdarfer of Ratisbon at Milan, 1476, and "Quæstiones de Tribus Principiis Rerum Naturalium" by Antonius Andreas, printed at about the same date by Canozius at Padua. The gem of these additions to an already unique collection is perhaps the "Contra Pestem" of Johannes Mercurius, printed at Rome by Johannes Besicken in 1493. The book is not mentioned by Hain, and is pronounced by Mr. Voynich to be the only known copy. It is not, however, the earliest treatise on the Plague, for Stainhöwel, of Ulm, had already in 1480 published "Von der Pestilenz" ("Regimen Pestilentiae"), although the latter fact does not seem to have been known to his translator, C. Ehrle, who described his manuscript in 1880. Other specifically medical works are the "De Plinii et Aliorum in Medicina Erroribus," of date 1492 (Ferrara), by Nicholaus Leonicensis, and Maimonides' "De Regimine Sanitatis ad Soldanum Babylonie," published at the Monastery of St. James de Ripoli in Florence in 1477. The works we have mentioned have been purchased by the "Fund for Rare Books" and the Funds of William F. Norris and Horace Magee. These agreeable resources are a feature of the Philadelphia Library for which English librarians can only envy their learned colleague, Mr. Charles Perry Fisher. To the Fund for Rare Books is also due the acquisition of a number of specially interesting sixteenth and seventeenth century works, including editions of David Abercromby, Abraham Aben Ezra, Henricus Cornelius Agrippa, Albertus Magnus, Valerius Cordus, Descartes, Raymund Lully, Simon Portius, to name only a few authors among many.

AN INDICTMENT OF THE PANEL SYSTEM.

THE panel system has been brought into the limelight by the criticism of the coroner for North-East London at a recent inquest. The conduct of the practitioner concerned will be a matter for further inquiry, but it appears to be necessary to remind the public that the conditions of medical practice so severely condemned by the coroner were in existence long before the panel system was established. In the *Daily News* there was recently published a very interesting article on "The Back-Street Practice," by Dr. F. G. Layton, in which a true picture is drawn of the state of things which formerly prevailed. "The club doctor was willing to work for a capitation fee so low that only numbers, extraordinary numbers, of capitation fees made it worth while. He had so many names on his list that he could deal with little, if any, of his work properly. In those days strangulated hernias were poulticed until they sloughed; appendicitis patients perforated and died . . ." Readers of THE LANCET may recall the investigations which resulted in the publication of the "Battle of the Clubs." If the poor man's doctor was overworked in those days, he is more heavily burdened to-day, when the poor industrial centres are in question, because the provision of medical benefit brings to his surgery insured persons who hitherto had recourse to the out-patient departments of our large hospitals, or who were treated under the Poor-law.

How is this state of things to be remedied? Some provision must be made for the great mass of illness which occurs in the overcrowded industrial neighbourhoods. The panel system has presented the best solution of the difficulty up to the present. The statement attributed to the coroner for North-East

² E. C. Rosenow: Collected Papers of Mayo Clinic, 1915, p. 276.

London, that "the panel system is a retrograde step, not too strongly described as a disastrous blunder and a miserable failure," is more than exaggerated. "Replace the present system," he says, "by one under which the doctor is paid for the actual work done, and the patient is free from restrictions both in choosing and in changing his medical attendant." But this proposal does not touch the root of the evil. The problem is one of adequate provision for the amount of work which requires to be done. Mere change in the method of payment cannot provide better attention and treatment when it is admitted that the number of practitioners in poor neighbourhoods is too small so that each has too many people to attend to. How can the frequent transfer of patient from practitioner to practitioner reduce the volume of work or make the work any easier? Payment on the basis of attendance is not likely to attract more doctors to these overcrowded areas. There are but 24 hours in the day, and it might be well if some of the critics of the panel system could experience the burden of the day's work of a busy panel practitioner. There is a limit to the time which can be devoted to consultations, not only because of the limits of physical endurance, but because the time devoted to visiting must not be curtailed.

The remedy which could be immediately applied would be a substantial increase in the number of practitioners in these areas. But well-qualified men will not be attracted to industrial areas if the remuneration is reduced.

STERILISATION OF TYPHOID CARRIERS BY REMOVAL OF THE GALL-BLADDER.

THE problem of the typhoid carrier in the general population is difficult enough in all conscience, and in asylums for the insane it is even more knotty for obvious reasons. The sane carrier can, in some cases, be persuaded to take certain elementary precautions which the insane cannot be expected to observe, and, as every asylum physician knows, it is often difficult to detect typhoid fever at an early stage in the insane. These, and kindred difficulties, are discussed in two papers published by Dr. A. Hottinger and Prof. C. Arnd (the latter since deceased, see THE LANCET, March 31st, p. 673) respectively in the *Schweizerische medizinische Wochenschrift* for April 26th. The asylum to which they refer has been unable for the past 20 years to stamp out an endemic of typhoid and paratyphoid fever, the staff as well as the patients falling ill from time to time. Various prophylactic precautions were taken, but new cases continued to crop up, doubtless because it was impossible effectively to isolate all the carriers. Accordingly, an attempt was made to sterilise 15 of these carriers by cholecystectomy, the whole of the gall-bladder being removed. In eight of ten persons who were typhoid carriers no typhoid bacilli could be found after the operation, but as far as the paratyphoid carriers were concerned, the operation proved to be futile. In two cases cholecystectomy in typhoid carriers was followed by the disappearance of typhoid bacilli from the stools, which then, however, were found to harbour paratyphoid bacilli. A somewhat disconcerting observation was made in the case of four typhoid carriers whose gall-bladders proved to be completely sterile; three of the five paratyphoid carriers were also robbed of perfectly sterile gall-bladders. At first sight it would seem that the operation in all these seven cases was ill-advised and useless. Perhaps it was. And perhaps the disappearance of typhoid bacilli from the stools in some of these cases immediately after the operation was a coincidence; the patients might have ceased to be carriers spontaneously and without the discomforts and dangers of an operation. There is, however, the possibility that the attendant incidents of the operation—ether anaesthesia and a restricted dietary for four to five days—may have played a part. Be this as it may, the prospects of sterilising paratyphoid carriers seem to be meagre on this showing, and even in the case of typhoid carriers cholecystectomy has

a very uncertain action. It has recently been pointed out by Dr. Murstad, of Bergen, that cholecystectomy is of personal advantage to the carrier of typhoid bacilli as well as to his potential victims, because the gall-bladders of carriers often harbour calculi as well as typhoid bacilli. But among the 15 patients treated by Dr. Hottinger and Prof. Arnd there were only eight in whose gall-bladders calculi were found.

THE YALE SCHOOL OF NURSING.

THE tenth anniversary on May 14th of the granting of a charter to the Rockefeller Foundation was the occasion of a statement by the secretary of the total sums disbursed during ten years. Public health has benefited to the extent of 18 million dollars; medical education to the extent of nearly 25 million. The most recent gift of the Foundation has been to endow a School of Nursing to be founded in the University of Yale. This Foundation is the outcome of the increasing recognition by leaders of public health work in America of the importance of the public health nurse. The school will not, however, be limited to training for this field, but will provide instruction in every branch of nursing. Unnecessary drudgery is to be no part of the student nurse's curriculum. The length of the course, the periods to be allotted to theory and practice, and the question of a degree in nursing still remain to be settled. The novelty of the scheme necessitates cautious development, but it may safely be assumed that the school will play an important part in the future of nursing. The first director of this school has been appointed. She is Miss Annie W. Goodrich, now assistant professor of nursing at Teachers' College, Columbia University, and for the last seven years director of nursing at the Henry Street Settlement.

DECAY IN STONE.

UNTIL Pasteur showed that decay was the result of bacterial infection it was generally supposed that foodstuffs, and indeed organic matter in general, underwent a natural and inevitable process of dissolution. In the same way the view has too long been held that decay in building stones is a natural process, and that the only way of preserving historic buildings and ancient monuments is to replace with new material as occasion arises the parts which have disappeared. It has now been decided to set up under the Department of Scientific and Industrial Research a special committee of the Building Research Board to report on the best methods by which such decay may be prevented or arrested. It is presumed that the investigation is likely to be complex, and in order to approach it from different angles with the help of wide scientific knowledge three Fellows of the Royal Society have been appointed members of the committee which will be presided over by Sir Aston Webb. Communications may be addressed to the Secretary of the Department at 16, Old Queen-street, London, S.W. 1.

THE next session of the General Medical Council will begin on Tuesday, May 29th, at 2 P.M., when a report will be made by Sir Donald MacAlister on the work of the Council since the November session, and penal and other matters will be considered.

THE twelfth Biennial Huxley Lecture on Recent Advances in Science and their bearing on Medicine and Surgery will be given at the Charing Cross Hospital Medical School by Sir Arthur Keith, at 3 P.M., on Wednesday, June 27th, when the chair will be taken by Dr. William Hunter. Admission to the lecture free without ticket.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—A meeting will be held at 11, Chandos-street, Cavendish-square, London, W. 1, on Tuesday, May 29th, at 5 P.M., when Dr. Alice E. Sanderson Clow will read a paper on the Effect of Physical Exercise on Menstruation.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XX.

TREATMENT OF GONOCOCCAL EPIDIDYMITIS AND ITS BEARING ON STERILITY.

SINCE it is mainly on account of the complications to which it may give rise that gonorrhœa is such a serious disease its successful treatment lies in the avoidance of complications and especially of such complications as prostatitis and its sequelæ. Unfortunately, it is not in the power of the medical man to safeguard his patient from all the dangers to which his attack of gonorrhœa has exposed him. The factors that determine the spread of infection from the anterior to the posterior urethra are no more within his control than are those that determine the spread of a pharyngeal infection to the larynx within the control of a laryngologist. Nevertheless, by judicious treatment he can, at least, minimise the chances of epididymitis with its attendant risks of sterility.

Preventive Treatment.

The most important of all the measures directed to this end in a case of acute gonorrhœa is undoubtedly rest. Were it possible to do so I would confine to bed every patient of mine who was suffering from acute gonorrhœa, and would keep him there until the acute stage of the disease were over. By such means alone the number of those who subsequently developed epididymitis would certainly be halved. If complete rest is impossible owing to the circumstances of the patient his doctor must, at any rate, insist on the avoidance of all unnecessary exertion for the first three weeks or so of the attack, and must strictly limit the amount of exercise allowed during the whole of the time that the patient is undergoing treatment. Many an attack of epididymitis occurring at a later stage in the disease has followed an injudicious bicycle ride embarked on when the patient has been under the impression that he was cured and able to do what he liked.

The second point of paramount importance in the prevention of epididymitis is the avoidance of all trauma to the testis. In my opinion gonococci are in a large percentage of cases present in the tissues of the testicle even although signs of active inflammation are absent. It wants but the additional factor of bruising and lowering of tissue resistance to precipitate an acute inflammation, and since few structures in the body are more exposed to continual trauma than those in the scrotum every patient suffering from acute gonorrhœa should be provided with a suspensory bandage designed to keep the testicles well braced up and, as far as possible, out of harm's way. The adoption of such a precaution should be immediate and not undertaken merely when the patient complains of aching in the testicle, and it should be regarded not as a curative but as a preventive measure.

The third factor of importance is the avoidance of irritation of the posterior urethra. Whether the infection of the epididymis be due to the spread of organisms down the lumen of the vas, as is generally believed, or whether it be due to their spread along the surrounding lymphatics, as I have attempted to prove,¹ it is, at any rate, certain that irritation of the posterior urethra is generally the exciting cause of the attack. The mucous membrane of the posterior urethra is one of the most sensitive and easily damaged lining membranes in the body, and must be treated with immense respect, especially when it is in a state of inflammation. Hence the necessity for excessive caution in the technique with which irrigation is carried out.

Precautions in Irrigation.

High irrigators and strong lotions were together productive of thousands of cases of epididymitis during the war, and even at the present time certain clinics produce an unnecessarily large crop of epididymitis cases as a result of unskilful irrigation. The question as to whether posterior irrigation should be carried out at all in the earlier stages of gonorrhœa is one on which experts differ. A widespread fear exists in the minds of the public and the profession alike that posterior irrigation may carry infection back from an infected to an uninfected area, and thus help the spread of the disease. This danger is, however, theoretical and more apparent than real. The answer as to whether it is wise to proscribe posterior irrigation from the start is one that can only be supplied by a careful comparison of clinical results. Are complications commoner when posterior irrigation is used as a routine, even in cases that clinically give no indication of an infection of the posterior urethra? Personally, as the result of observations at my clinic at St. Bartholomew's Hospital and elsewhere, I believe they are, and for this reason I recommend that when treating an acute or subacute urethritis, which clinically at any rate appears to be confined to the anterior urethra, anterior irrigation alone should be carried out.

Before leaving this subject it is advisable to utter a word of warning against the employment of two methods of treatment—the syringe and the medicated bougie. Both are highly productive of epididymitis and have the additional quality of being inefficient. It is almost impossible for a patient when injecting himself with a syringe to regulate the pressure at which the fluid is introduced, for it is very seldom that the piston runs with uniform smoothness in the barrel. Of medicated bougies little need be said, except that most of us have at one time employed them and have quickly abandoned them. Additional exciting causes of epididymitis are the passage of instruments during the acute stage of the disease, and over-vigorous or premature massage of the prostate, both of which may be grouped under the aforementioned heading of irritation of the posterior urethra.

The Relief of Pain.

The treatment of epididymitis, once it has occurred, consists of measures directed to the relief of pain and to the hastening of resolution. The pain is sometimes intense and may call for somewhat drastic methods of treatment. It is due to intense congestion and oedema of the testicle and to the fact that the tunica albuginea only allows a certain amount of expansion. For such cases the rational treatment is puncture of the congested epididymis. This may be done by means of a hypodermic needle and syringe, the syringe being used to draw off as much serum and blood as possible. More drastic proceedings have been advocated, such as puncture with a fine tenotome or even open incision. These methods would certainly appear to involve the risk of inflicting permanent damage on the epididymal canal, and thus be productive of future sterility. Fortunately they are rarely if ever required. If necessary the puncture may be combined with the use of a morphia suppository.

Various applications to the scrotum have been recommended from time to time—guaiacol ointment, belladonna, ichthyol, and various preparations of iodine. I am convinced that none of these is so effective as the application of heat. Heat may be applied as fomentations, hot baths, steaming, or best of all by means of diathermy. Without doubt the most satisfactory results at my own clinic have been obtained through the use of diathermy, but when this is not available the simpler remedies will be found not only to give relief but also to hasten resolution. During the attack of epididymitis all intra-urethral treatment must be postponed. When the attack has subsided it is as well to warn the patient that it will take a month or two for the swelling of

¹ THE LANCET, 1913, i., 435.

the epididymis to disappear entirely and that for a long time a small nodule will be found in the lower pole. When resolution is very tardy I have sometimes found the use of a large dose of vaccine and the provocation of a strong reaction to hasten matters.

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Special Articles.

DENTAL BOARD OF THE UNITED KINGDOM.

ADDRESS FROM THE CHAIR.

THE fourth session of the Dental Board of the United Kingdom was held on May 9th, 10th, and 11th at 44, Hallam-street, London, W., the Rt. Hon. F. D. Acland being in the chair. In his address, Mr. Acland referred to the fact that upon this occasion the Board met for the first time in its own Board Room, and spoke of the harmonious and useful work which he hoped would there be carried out. He expressed the gratitude of the Board to the General Medical Council for help given by lending their offices, and in every other possible way, and to Sir Almeric Fitzroy for conspicuous services rendered to the dental profession, in his capacity as clerk to the Privy Council, in the formation of the committee upon whose reports the Dentists Act of 1921 was founded, and in active membership of that committee. The Finance Committee, continued Mr. Acland, would submit to the Board an estimate of receipts and expenditure for the year ending Dec. 31st next. The estimated income of the Board for the year, about £45,000, would be sufficient to discharge its ordinary expenses, to pay the balance of about £13,000 not provided for in the previous year for building and equipment, and to leave about £20,000 available for research and education, of which approximately £3,000 had already been appropriated for grants and loans. The Finance Committee had estimated that £1500 would be required for legal expenses; the Board was now practically concluding one chapter of work entailing legal expense—that of registration—but another, connected with discipline, was now opening before it. Mr. Acland emphasised the fact that, to the exact extent to which it was necessary to take proceedings for the enforcement of a proper standard of conduct in the profession, money was subtracted from the funds available for the advancement of the profession through education and research.

Assistance of British Students.

Progress had been made, he continued, towards assistance of persons who were debarred from registration as dentists by being under the age of 23 at the date of the passing of the Dentists Act. At the request of the President of the General Medical Council some of the Licensing Bodies had agreed to accept them as students without requiring the usual standard of general education preceding their entrance upon professional study. The Board would be asked to approve the setting aside of a sum to assist with regard to fees, and in some cases maintenance, such of these persons as satisfy examiners appointed by the Board of their competence in mechanical dentistry, and show that they are unable to qualify without this assistance.

As, however, it did not yet appear very likely that suitable persons from this class would come forward up to the numbers which the Board could afford to assist, letters had been written to head masters and mistresses of a large number of secondary schools, informing them that the Board hoped to be in a position to assist students suitable for, but unable to

take, the dental curriculum owing to want of means, and asking them to recommend names. Twenty recommendations had already been received. It would be a proud boast if in course of time the Board could say that no suitable student was debarred from entry to the profession by lack of means.

Lectures and Post-Registration Study.

Admirable courses of four lectures had been delivered, under arrangements made by the Board, in London, Edinburgh, and Manchester, on diseases of the periodontal tissues due to infection in their relation to toxæmia; these lectures were, he believed, very keenly appreciated by large audiences at every centre. He was sure that the Board would wish to receive proposals for future similar courses, and would desire to consider the development of post-registration study.

Grants to Ex-Service Students.

Grants had been made to ex-Service students, who would otherwise have been left stranded towards the end of their professional courses by the cessation of grants from the Government; these grants might involve a total payment of about £3500 out of this year's revenue. In not a few cases the persons assisted had already qualified, and several of them had written expressing their gratitude for timely assistance. The Education Grants Committee had begun on a small scale to make loans to students not in receipt of Government grants who found themselves unable for unforeseen reasons to complete their courses. The Committee would present to the Board an abstract showing the accommodation and facilities for training possessed by the dental schools, with an outline of their future needs, showing in general that extension and improvement of premises are both desirable and desired by the school authorities, and that, while space for extensions is available, funds are not. The Board would, in Mr. Acland's opinion, not be able at any very early date actively to assist development, but he hoped that before the end of the year they might be in a position to make offers of future help.

Research.

Progress would be reported as regards research, both on its medical and on its scientific side. The Board would be able to consider a definite scheme of research in which they were asked by the Medical Research Council to coöperate. The Department of Scientific and Industrial Research had welcomed the possibility of help as warmly as the Medical Research Council. The Board was represented on a provisional committee set up by the Department, whose task was to inquire how the problems which it was desired to examine could best be fitted into work already under investigation, and to make recommendations for carrying the work forward.

Discipline.

The Discipline Committee had given much consideration to problems arising in the interpretation of the Board's Warning Notice. Many inquiries had been received as to the circumstances under which it was to be allowable to insert a notice in a newspaper as to change of address or hours of attendance at a particular address, to use the words "dental surgery," and to use illuminated signs. Without committing the Board on the subject, the Committee had given provisional rulings on these points, which rulings, he suggested, should be considered by the Board during its session, and if approved should be published for general information. He was very much impressed by the evident desire of the vast majority of those newly admitted to the Register to maintain honestly and honourably a standard of conduct which would accord with the Board's wishes; and the Board, he thought, owed it to them to give as clear a ruling as possible upon points which might be genuinely in doubt.

Coöperative Societies and Dental Treatment.

Negotiations had been proceeding between associations and societies of dentists on the one hand and representatives of the industrial coöperative move-

ment on the other, with regard to the conditions under which coöperative societies should arrange for their members and members of their families to receive dental treatment. These negotiations arose out of the proceedings at the meeting of the Board on Nov. 21st, 1922, which were followed by a conference between the parties at the offices of the British Dental Association. Only unimportant details remained for settlement, and complete agreement had been reached on the main principles of a scheme of working. A panel would be formed of all dentists willing to accept a certain scale of fees mutually agreed upon, thus avoiding the advertising of a particular dentist which had hitherto frequently occurred; and the dentist would receive the agreed scale of fees from the society without deduction, which would avoid other undesirable aspects previously occurring in certain cases. If, as Mr. Acland hoped, the Board's scrutiny of the agreement when presented revealed no undesirable features, only its administration would remain to be watched, in which direction he anticipated no difficulty, being convinced that the coöperators' representatives, like the dental bodies, would do their utmost to see the agreement speedily and loyally carried out. The Board might, however, have more difficulty in securing the elimination of undesirable elements in the arrangements between dentists and bodies of persons outside the coöperative movement.

Practice by Unregistered Persons.

In conclusion, Mr. Acland dealt with the proceedings which the Board has already taken to secure that dentistry shall not be practised by unregistered persons, and that it shall be practised by dentists in conformity with the Warning Notice. The Board's solicitor had up to Easter taken action in 132 cases of persons continuing wrongfully to practise after Nov. 30th last. The majority of these were persons registered last year who had not paid the retention fee for this year, or persons whose applications were found to be in order last year but had paid the fee neither for last year nor this. Several had pleaded illness as an excuse, but, as the Board's solicitor had pointed out, a man well enough to practise was well enough to sign a cheque. A minority of cases—22 in all—were of persons who had either never applied to be registered, or who in their applications had not satisfied the Board's requirements. The work of clearing up these cases had been proceeding satisfactorily. It had seemed necessary to take actual legal proceedings in only four cases as yet, and in all of them the prosecution was successful. He was glad to be able to bear witness to the valuable assistance rendered in these cases by the police.

Breaches of Warning Notice.

With regard to alleged breaches of the Board's Warning Notice, which it was necessary to remind certain writers in the dental press were not breaches of law and therefore could not be dealt with through the police, a vigorous and systematic taking up of cases properly reported had served in very many cases to secure immediate promises of amendment, which had been without doubt generally carried out. A residue of cases in which by direction of the Discipline Committee persons would be charged with infamous or disgraceful conduct in a professional respect, remained for the Board's consideration. The experience so far gained, Mr. Acland stated, had shown that the Board was not unwise in requiring a complainant in certain cases to set out the facts of the case in a statutory declaration. The Board did not necessarily want the complainant to conduct the case before it, but he must show that there were genuine grounds for inquiry, this being a necessary guarantee that the complaint was bona fide and not vexatious. The Board must ask for some slight element of coöperation from the profession, and he could not imagine that any one affording it would, as had been suggested, be placed in an invidious position to the prejudice of his social and professional status.

DISCIPLINARY AND OTHER MATTERS.

At the conclusion of the Chairman's address the Registrar reported the restoration to the Dental Register of the names of Emile H. Chapman, Richard K. Devonshire, Wm. E. Ganney, and Wm. H. Loosely.

Dentists Carrying on Another Business.

Mr. E. L. Sheridan asked whether it was permissible for a dentist to carry on another business (e.g., that of bookmaker or dancing master) at the same time as he is practising dentistry. The Chairman gave the following ruling: "It is permissible for a dentist to carry on any other occupation which is itself lawful at the same time as he is practising dentistry, and the Board have no power to interfere."

Registration.

The Chairman of Business, in the absence of Mr. Stirling, in his behalf called attention to the concluding words of the first schedule of the Dentists Act, 1921: "Provided that the powers of the Board in connexion with admission to, erasure from, and restoration to the Register shall be exercised by the Board itself and shall not be delegated to any committee." He pointed out that in accordance with these words all the business of the Registration Committee must be reported to and confirmed by the full Board before it can have any legal effect.

The Chairman gave the following ruling: "The proviso to Section 9 of the first schedule to the Dentists Act, 1921, relates only to the powers of the Board and the method of their exercise. The proviso does not apply to the purely ministerial act of the Registrar in admitting to the Register. The Registrar and other officials of the Board act under the direction of the Board, and when an applicant for registration has complied with all the requirements of the Act he must be registered, and the Board have no power to refuse him. It is true that in certain cases of doubt or when objection has been lodged the regulations of the Board provide that the Registrar shall refer the matter to the Registration Committee, who ascertain the facts. If the Committee find on the facts that the applicant has complied with the requirements of the Act he is registered. If they find otherwise the case is referred to the Board. The refusal to register is an exercise of one of the powers given to the Board. This power has never been delegated; it is always exercised by the Board itself whenever the refusal has been questioned by an applicant."

Penal Cases.

Ten cases were considered by the Board. Of these, two were forwarded for the consideration of the General Medical Council. A third case, in which the offence was covering, had been twice adjourned from previous sessions of the Board; the Board did not see fit to recommend erasure from the Dentists Register. In the remaining seven cases the offences consisted of various forms of advertising or canvassing; of these, two cases were dismissed with the customary warning as to future conduct, and the remainder were postponed till the November session of the Board, the dental practitioners concerned being required to supply satisfactory evidence of their conduct in the interval. In several of these seven cases the Chairman emphasised the fact that the offence was among the first of its kind to be brought before the Board, and a certain leniency was exercised in view of possible misunderstandings. The majority of practitioners concerned had discontinued the practices complained of, and readily undertook that there should be no repetition of them. Two cases were of advertising in newspapers, and in two other cases the practitioner had "sought to procure patients by sending out circulars to patients . . . suggesting that they should canvass" on his behalf. In one case an advertisement which had appeared in a theatre programme for 20 years was overlooked by a practitioner admitted to the Register under the Dentists Act, 1921. In another case advertisements had been hung in an hotel and in a restaurant, and a dentifrice had been supplied to chemists with transparencies and wrappers bearing

the name and address of the registered dentist in question; the latter had, however, taken steps to replace the chemists' stock and to secure the removal of the advertisements.

A Dentist's Street Signs.

The remaining case was that of a practitioner summoned to appear before the Council on a charge of advertising by exhibiting on numerous parts of his premises his name and qualification, together with other words (e.g., "The old-established dentist," "advice free," "moderate charges," &c.), "such being in size and quantity greatly in excess of anything required for legitimate professional purposes."

This practitioner, who had first been registered as in practice on July 22nd, 1878, had appeared before the General Medical Council in 1914 and 1915, and claimed to have received the sanction of that body for the signs complained of, as represented in photographs. He also claimed that his signs (some of which were in letters 18 inches high) were necessary in the busy thoroughfare in which he practised, and asked for a definite ruling as to what size of lettering would be sanctioned by the Board. The Chairman explained that the Board could not indicate exact sizes or brightness of lettering, or the number of times a practitioner might display his name, as that would entail visiting every place in the country where the profession of dentistry was carried on. Different rulings were necessary in different places; what the Board wished for, and intended to enforce, was that amount of indication which might reasonably be regarded as sufficient to guide persons desiring treatment to the location of, and entrance to, the premises where that treatment could be obtained. Nothing would be tolerated which might be construed as advertisement.

The practitioner indicated on a photograph the extent to which he felt prepared to modify his business signs; the Board could not accept the degree of modification proposed, and the case was adjourned till the November session, the Chairman advising the practitioner to reconsider his position and to be guided by the Board's advice.

PSYCHO-PATHOLOGY FOR THE GENERAL PRACTITIONER.

A SUGGESTED SCHEDULE OF TRAINING.

In his Memorandum to the Minister of Health on Recent Advances in Medical Education (see THE LANCET, May 5th, p. 809), Sir George Newman points out that the practitioner's approach to mental disorder should be through a twofold training, in psychology and psycho-pathology. The former should belong to physiology in its wide sense, the latter falls within the clinical years. Between the two, or as part of either, may well come a brief course of a few lessons in medical psychology, with particular reference to psycho-neuroses, with instruction as to the examination of patients, the practice of suggestion and persuasion, psychological analysis, and mental testing. To these courses would be added clinical work, first in a mental hospital and then in the out-patient clinic for nervous and mental disorders at the general hospital.

The curriculum in mental diseases which he suggests is as follows:—

1. A short course of lectures (5-10) in normal psychology, preferably as part of the course in physiology (reflexes, habit, instinct, emotion, intelligence, the conscious and the unconscious mind, Binet tests, investigational methods, &c.).
2. Half a dozen explanatory discourses in abnormal psychology to be taken concurrently with clinical work in mental disease.
3. Ten or 12 systematic lectures on mental disease, concurrently with clinical work, and clinical demonstrations at a mental hospital of in-patients, pronounced cases (recent or chronic), and the usual types of insanity.
4. A series of demonstrations in the out-patient clinic for nervous and mental disorders at the general hospital.

What the student needs is instruction in the ætiology, symptoms, diagnosis, treatment and prognosis of the morbid mental states most commonly met in general practice. And Sir George Newman adds a statement which comprises suggestions as to the principal sphere of psycho-pathology for the medical practitioner. Its purpose is to set out in schedule form the main points and their mutual relationship.

"*Unsoundness of Mind*" as a comprehensive term, including mental deficiency and mental disorders: conception and ætiology of—including the biological aspect; physical and toxic factors and the relation of endocrine disturbance; and such mental factors as mental trauma, prolonged mental stress, the repression and operation of "complexes," and subconscious states. The relation of psychological to general medicine. The preventive importance of the foregoing considerations.

Mental Deficiency.—Degrees of, as defined by Statute. "Stigmata" of degeneration. Sociological importance of "moral imbecility." Distinction between mental deficiency and backwardness. Recognition of the more important clinical forms. Principal lines of treatment, supervision, and training.

Mental Disorders—including the psycho-neuroses and the more important of the psychoses. The symptomatology includes insomnia, confusion, delirium, hypochondriasis, depression, agitation, exaltation and excitement, illusions, hallucinations and delusions, sexual perversions, &c.

(a) *Psycho-neuroses*.—Hysteria, anxiety neurosis (including possible relation to exophthalmic goitre). Neurasthenia. Obsessional states: their symptoms, diagnosis, prognosis, and treatment. Differential diagnosis between so-called functional and organic conditions.

(b) *Psychoses*.—General paralysis: its ætiology, early symptoms, course, prognosis, and treatment. Mental disorders in connexion with epilepsy. Dementia præcox, paraphrenia, paranoia, and manic-depressive psychosis—outline of these conceptions and group forms and of their respective phases, with symptoms and treatment of the earlier stages. Confusional psychosis (states of confusion and delirium): toxæmia, exhaustion, and other ætiological factors; symptoms; diagnosis; prognosis and treatment; multiple foci of infection. Alcoholic psychoses: Delirium tremens, chronic alcoholic hallucinosis, alcoholic paranoia, and polyneuritic psychosis. Alcoholic excess and other psychoses. Drug-habit psychoses: Morphinism, cocaineism, &c. Arterio-sclerotic psychosis, especially its earlier symptoms and their treatment, and senile dementia. Traumatic psychoses and others associated with organic brain disease. Endocrinal psychoses: Myxœdema; exophthalmic goitre, acromegaly, &c.

(c) *Epical and other "Critical" Influences*.—Puberty, adolescence, climacterium, and senescence; gestation, puerperium and lactation. The relative likelihood at each of these periods of the onset of one or other of the psychoses. The milder mental disturbances, not amounting to a psychosis, liable to be associated with each period, and the treatment of these disturbances.

The Services.

ROYAL ARMY MEDICAL CORPS.

THE undermentioned retire on ret. pay: Lt.-Col. G. B. Riddick; and Maj. G. R. Painton, on account of ill-health contracted on active service, and is granted the rank of Lt.-Col. Surg. Capt. G. O. Chambers, from Life Guards, to be Maj.

Maj. W. E. Marshall is restd. to the estab.

Capt. and Bt. Maj. N. V. Lothian retires, receiving a gratuity, and is granted the rank of Maj.

General List: Capt. E. E. Lightwood (late of R.A.M.C.) to be Capt. Capt. J. C. Newman, having attained the age limit, is retired and retains the rank of Capt.

Capt. A. G. M. Middleton resigns his commn. and retains the rank of Capt.

Lt. H. Mather to be Capt.

W. J. Roche to be Lt.

General Hospitals: The undermentioned, having attained the age limit, are retired and retain their rank except where otherwise stated: Lt.-Cols. H. R. Vachell, T. Wallace, and E. Le C. Lancaster; Majs. W. M. Stevens (granted the rank of Lt.-Col.), P. R. Griffiths (granted the rank of Lt.-Col.), C. Lewis, D. R. Paterson, B. W. Broad, A. Howell, C. A. Griffiths, W. F. Brook, A. T. Waterhouse, J. S. Bury, and Sir W. Milligan; Capts. A. Sellars (Bt. Maj.), R. W. MacKenna, R. T. Williamson, C. H. Melland, W. J. S. Bythell, R. W. Marsden, A. Donald, H. Lund, C. Roberts, A. E. Barclay, R. C. Elsworth (granted the rank of Maj.), H. A. Scholberg, W. J. Greer (granted the rank of Maj.), T. M. Thomas (granted the rank of Maj.), W. Nicholson, E. Reid

(granted the rank of Maj.), F. G. Thomas, O. W. Morgan, C. B. Gratte, R. J. Coulter.

Cpts. T. B. Mouat and E. M. Woodman relinquish their comms. and retain the rank of Capt.

Capt. R. Ollerenshaw relinquishes his commn. and is granted the rank of Maj.

Supernumerary for service with O.T.C. : Capt. C. H. Budd to be Local Maj. whilst comdg. a Section of the Field Amb., Cambridge University Contingent, O.T.C.

TERRITORIAL ARMY RESERVE.

Capt. E. J. Y. Brash relinquishes his commn. and is granted the rank of Maj.

Capt. W. Seymour, from 1st Northern Gen. Hosp., to be Capt.

Capt. S. G. Webb, from 1st Southern Gen. Hosp., to be Maj.

ROYAL AIR FORCE.

The undermentioned are granted temporary commissions in the ranks stated : Flight Lt. T. Sheehan ; Flying Officer K. R. Smith.

The undermentioned Flying Officers to be Flight Lieutenants : W. E. Barnes and C. A. Lindup.

Squadron Leader A. G. Higgins relinquishes his temporary commission on ceasing to be employed.

INDIAN MEDICAL SERVICE.

Majors R. Kelsall, J. McC. A. Macmillan, C. A. Gill, R. F. Steel, G. W. Maconachie, E. W. C. Bradfield, A. W. M. Harvey, C. I. Brierley, J. B. D. Hunter, and E. T. Harris to be Lt.-Cols.

Ram Mansoor, Santosh Kumar Ganguli to be temp. Lt.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives the principal statistics of a group of sanitary districts for 1922.

Name of district.	Estimated population (mid-year).	Birth-rate.	Death-rates per 1000 of population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Stafford B. . .	29,260	16.9	11.2	1.2	1.0	3.0	67	167	0.0
Cambridge B. . .	58,900	15.3	11.4	0.8	1.5	2.5	68	97	3.3
Ramsgate B. . .	30,030	19.5	14.8	1.3	1.5	2.7	57	71	6.8
Finchley U.D. . .	46,830	16.6	10.5	0.6	1.4	1.8	43	173	2.6
Chingford U.D. . .	9,494	21.1	10.4	—	—	—	56	200	0.0
Barnstaple R.D. .	17,980	17.9	13.5	1.3	1.1	2.4	56	46	3.1
Plympton St. } Mary R.D. . }	21,080*	17.7	12.4	1.0	1.2	1.8	39	100	—
Thedwastre R.D. .	8,493	21.8	12.6	0.2	0.9	—	59	200	0.0
East Stow R.D. .	6,422	17.9	11.4	0.9	2.3	—	82	0	8.7

* For deaths. B., borough. U.D., urban district. R.D., rural district. Where a short line is given the figure is not available from the report.

Stafford.

Dr. J. T. MacNab reports that the very success of the infant welfare centre is hampering its work. More sessions are needed and a second health visitor. The "free milk" has been of the greatest value in promoting breast-feeding. The sanction of the Ministry is being asked for a grant towards work done for the centre by the orthopaedic clinic. A large proportion of the water-closets are of the waste-water type and give rise to trouble through stoppages. The housing difficulty continues to be a serious problem. Dr. MacNab advocates the building of simple houses in rows or terraces for the poorest families, to be kept under supervision; the private landlord will not accept tenants of this type; some of them are known to be bad tenants.

Cambridge.

Dr. Andrew J. Laird reports an unusual outbreak of scarlet fever at Addenbrooke's Hospital which appears to have been due to a healthy carrier in the person of a wardmaid, E. B., who was subject to sore throats, but had never had an attack of scarlet fever. Of 32 cases, in addition to sore throats, 18 occurred in E. B.'s ward. Visits by E. B. to a distant home and to another ward to see the child of a friend were followed by cases of scarlet fever. E. B. had tea with the wardmaid who succeeded her and her successor sickened with scarlet fever in a few days.

Otherwise the cases, which had continued from December, 1921, to May, 1922, ceased after E. B. left the service of the hospital. E. B. had chronic enlargement of the tonsils and a deflected nasal septum; her brother and sister had scarlet fever in 1910 but she escaped. Dr. Laird says that "the provision of more housing accommodation is still the great outstanding need." During the year 97 houses have been completed by the corporation and 38 by private enterprise. Dr. Laird advocates the building of a smaller and cheaper class of house and suggests mixing the three bedroom type with small terrace blocks of houses, containing two bedrooms, a living-room, and scullery and no bathroom. A nuisance has arisen from some of the college ditches. Sewage was not the cause, and the trouble was found by Dr. L. Cobbett to be due to the growth of algae on the surface of the dead leaves. In one ditch a beautiful purple coloration was found to be due to the growth of *Bacillus violaceus* on the leaves. The public dental officer, Mr. W. B. Grandison, reports on the progress of the maternity and child welfare dental scheme inaugurated in 1921. The expectant and nursing mothers have free treatment (with dentures, &c. at cost price) on condition that they enrol their pre-school children for dental inspection once a quarter. Under the scheme 139 mothers have been treated and 91 pre-school children enrolled. The condition of the mothers' teeth before and after treatment was as follows:—

Condition of Teeth of Nursing and Expectant Mothers.

—	Sound.	Saveable.	Unsaveable.	Missing.
Before treatment. .	987	95	1525	1489
After „	1053	29	185	2829

The treatment for the children was advice as to correct diet and oral cleanliness and the application of nitrate of silver to decayed saveable teeth to arrest decay until such time as the teeth can be filled.

Ramsgate.

The two special points stressed by Dr. W. J. Bannister are housing conditions and the pollution of shell-fish. Housing conditions are as they were in 1919, and houses unfit for human habitation and overcrowding cannot be dealt with. The Ministry have promised a special inquiry with regard to shell-fish from polluted sources. Out of three notified cases of typhoid fever, two were associated with the consumption of cockles from the mouth of the Stour. The council have a shell-fish station where cockles, &c., can be sterilised. No charge is made for shell-fish intended for consumption in the borough and a nominal charge for those exported to other districts. A suspected milkman was caught in the act of watering milk. He was charged by his employer with "damaging milk" and fined £5 or 21 days, and 6s. 9d. for the damage to the milk. Analysis showed the milk to have 12 per cent. added water and to be 14 per cent. deficient in fat. There are two council schools and seven "non-provided." The former are satisfactory, but most of the latter are old, of defective design, and as regard lighting, ventilation, and equipment, cannot be considered to comply with modern requirements.

"Surprise" cleanliness inspections have effected considerable improvement in verminous conditions. Out of 166 children needing treatment for tonsils and adenoids, only 18 received operative treatment, many of the cases yielded to regular breathing exercises following dental treatment. Dr. Bannister favours the appointment of an organiser of physical training and the formation of classes for corrective exercises for commencing deformity, round shoulders, and flat-foot.

Finchley.

Dr. Wilson Jameson reports that the negotiations for a joint isolation hospital with Hornsey and Wood Green were successfully completed in 1922. Refuse continues to be dumped and burnt at the sewage farm, and negotiations are in progress with Friern Barnet for a joint scheme for the disposal of refuse. 188 houses were erected during the year, 102 of which were part of a municipal scheme. The opening of the new cleansing station has brought about a definite improvement in the cleanliness of the school-children. The school dentist, Mr. G. H. W. Randell, reports that the parents are the chief obstacle to conservative work on

the temporary teeth of the school-children. Swimming is a feature at Finchley; the head teachers take a great interest in it and there were over 20,000 attendances during school hours at the public baths.

Chingford.

Dr. E. J. F. Hardenberg reports that the objectionable practice of dumping refuse at various tips has now been discontinued, and that furnaces erected at Old Church Brickfield now deal with the refuse in a satisfactory manner.

Barnstaple.

Dr. J. R. Harper draws special attention to the lack of an isolation hospital and to the need for greater cleanliness of persons milking and distributing milk.

Thedwastre and East Stow.

Dr. S. C. Houndsfield reports that the isolation hospital used for these two districts and Stowmarket, which was in great demand for most of the year, is "in a bad way," and that unless something drastic is done in the way of rebuilding, the work cannot be carried on and the hospital must be closed.

Correspondence.

"Audi alteram partem."

THE PAIN OF PSEUDO-ANGINA.

To the Editor of THE LANCET.

SIR,—In my paper on Angina Pectoris in THE LANCET of May 5th I referred to some experiments of Dr. E. P. Poulton in which a substernal oppressive pain was produced by artificially distending the oesophagus. Since then I have found that Stephen Hales¹ (who tested distensibility and fatigue of vascular coats, &c.) "found the gullet very distensible with a small force of water or wind," and that the gullet when dilated "compresses the descending aorta where the gullet is confined in its passage between that and the heart" (and so offers an explanation of vertigo). This observation is worth considering as a possible explanation of the particular class of quasi-anginal cases I described; and of the relief given by Mr. Verdon in angina by deflation of the stomach with a tube.

I am, Sir, yours faithfully,

Cambridge, May 11th, 1923.

CLIFFORD ALLBUTT.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR,—Having been commissioned to investigate Mr. Spahlinger's treatment, I visited his Institute in Geneva, in company with medical men from other British Dominions, and came to the following conclusions:—

Spahlinger has developed his methods after a long period, some 16 years, of research work. The methods at present are vaccine and serum therapy. Spahlinger claims and proves conclusively that tubercle bacilli, under different conditions of temperature, environment, &c., give forth different toxins, many of which he is able to isolate either as exotoxins or endotoxins. The methods of preparation of his various antitoxins, &c., are very elaborate and involve the description of many brilliant mechanical methods, which have not been adopted elsewhere. By his preparation of vaccines, he can apparently produce an artificial immunity such as that acquired by most humans who go through the world resisting all tuberculous infections. This has been well worked out by animal experiments.

The vaccine, in addition to its curative effects, may be used for prophylactic purposes, producing a degree of immunity that will last for many years. This vaccine therapy is used in treatment of all cases where the disease has not advanced too far. I saw many patients who had been treated by vaccines, and in most cases the results had been very good. Above all, the use of vaccine therapy seems to be specially indicated in what is commonly called surgical tuberculosis—e.g., glandular enlargements and bone infections. Some of the results obtained were most instructive, as in the gland

cases the swellings had completely disappeared, with no evidence whatever of fibrous tissue response; from which one makes the inference that the cure resulted in the destruction of the bacilli rather than in the encapsulation by fibrous tissue.

The serum prepared by Mr. Spahlinger is a long process, and briefly the method is as follows: By the use of different processes he isolates different types of toxins of different chemical constituents and of profoundly varying degrees of virulence, as demonstrated by him in experiments both in vivo and in vitro. Each of these toxins is injected at varying intervals into separate horses over a period of one year. In addition he also prepares an immune serum against pneumococci and streptococci in order that mixed pulmonary infections may be combated. The sera from the different strains are mixed together to form his complete serum. The use of this is only indicated in advanced cases.

The methods of preparation are a model of thoroughness and scientific research. Everything is faithfully controlled and the findings filed. The preparation of the vaccine takes some nine to ten months, whilst the serum takes nearly four years. The course of treatment varies in different cases, whether vaccine or serum therapy or both are used. The vaccine course should not last more than six months, but it may be necessary to carry it on longer. The serum is only used when the conditions are severe.

I saw many patients that had been treated and many that were under treatment. The treatment appears to be most effective and almost dramatic in all cases and types of surgical tuberculosis, regardless of how long standing the condition may be. Pulmonary cases respond, but not so rapidly. Yet in many I could find no evidence of disease, although from trustworthy documentary evidence there had been gross lesions present.

One case shown was a young Englishman, who some eight months before had reached Geneva in a practically moribund state exhibiting extensive pulmonary tuberculosis in both lungs with ulceration of the larynx. Reliable West-end physicians had diagnosed these conditions. Under a course of vaccine with a short period of serum therapy the man had made a wonderful recovery, and when seen by me exhibited no evidence of tuberculous infection and was able to do a hard day's work.

My conclusions coincide with those of my colleagues. After carefully weighing over the evidence and fully realising how difficult judgment is in such cases, we are of the opinion that in his methods we have advanced into a realm quite unexplored by any other observers. We have no hesitation in stating that Spahlinger is working on lines which, if fully developed, will bring the treatment of tubercle into the same plane as the treatment of diphtheria, tetanus, and from the prophylactic aspect will give results as followed the administration of T.A.B. vaccine. Mr. Spahlinger's work is a great one and will, I am sure, if given sufficient light and support, do more to alleviate the sufferings of those afflicted with this disease and eradicate the tubercle bacillus in one year than all the present-day methods will do in 100 years.

I am, Sir, yours faithfully,

H. B. JEFFS, M.D. Toronto,
Immigration Medical Adviser, Canada.

1, Regent-street, London, S.W. 1, May 14th, 1923.

¹ Statistical Essays, ii. (Hæmæstatics), 1769, p. 178.

THE ABUSE OF VENEREAL CLINICS.

To the Editor of THE LANCET.

SIR,—May I ask if THE LANCET is aware of the following facts concerning the venereal clinics and whether it proposes to use its influence to rectify these matters?

1. That these clinics are abused by a great many persons who can well afford to pay.
2. That the free treatment of diseases contracted by promiscuous sexual intercourse is a direct encouragement to vice and immorality.
3. That this is an injustice to the ratepayers and a waste of public money.
4. That many practices hitherto more or less dependent on the treatment of these diseases have depreciated in value, and in some cases ceased to exist, owing to the abuse of the venereal clinics.

I am, Sir, yours faithfully,
C. F. MARSHALL, M.D., F.R.C.S.

Welbeck-street, W., May 9th, 1923.

* * The report of the Trevethin Committee is expected to deal with the sound points raised by our correspondent. The feeling is undoubtedly widespread that patients who can afford it should pay for their treatment at the clinics, but no satisfactory method of compulsion has yet been devised. In some places instruction and warning are given as well as treatment, and where this is done as it should be there can be no question of encouragement to vice. Until practitioners generally are equipped to deal efficiently with venereal disease, we have repeatedly advocated a panel of practitioners through whom treatment could be provided.—ED. L.

SUBCUTANEOUS CALCAREOUS DEPOSITS.

To the Editor of THE LANCET.

SIR,—In THE LANCET for May 5th (p. 900) Dr. J. R. Logan is reported as having shown a case of subcutaneous calcareous deposits in the hands in an elderly female, suffering from a mild degree of Raynaud's disease. Most similar cases, as far as I am aware, have shown sclerodactylia of the hands, and sclerodactylia is often accompanied by angiospastic symptoms resembling mild Raynaud's disease. I would suggest that the case is of the same class as the one of sclerodactylia with subcutaneous calcareous concretions in a woman that I described, jointly with Dr. R. F. Scholefield, in 1911.¹ The patients are mostly females. In Haldin Davis's case there were "Raynaud-like" symptoms, but no definite sclerodactylia, when brought before the Dermatological Section of the Royal Society of Medicine in March, 1912. The publications on cases of subcutaneous calcareous concretions and "Kalksteingicht" have become very numerous. In France and Italy cases have sometimes been described under the heading "Profichet's disease" owing to G. C. Profichet's thesis "Sur une variété de concrétions phosphatiques sous-cutanées (pierres de la peau)," Paris, 1900. Considerably earlier was the writing by a Swiss doctor, H. Weber, on the subject. A recent paper of interest on "Kalksteingicht" is that of E. Holländer.²—I am, Sir, yours faithfully,
F. PARKES WEBER.

London, May 8th, 1923.

TREATMENT OF LIVER ABSCESS BY ASPIRATION.

To the Editor of THE LANCET.

SIR,—In their interesting paper on this subject in THE LANCET of May 12th Dr. P. Manson-Bahr and his collaborators refer to the method of evacuating a pointing abscess by means of a trocar, which was practised as long ago as 1828. So close and ingenious an approximation to this method was recommended by Aretæus, the Cappadocian, who flourished about the

¹ Brit. Jour. Dermat., 1911, xxiii., 276.

² Deut. med. Wochenschr., 1917, xliii., 431.

middle of the second century A.D., that I thought it might be of historical interest to quote the words of that great physician. The following sentences are from the translation by Francis Adams of the "Extant Works of Aretæus" (London: Printed for the Sydenham Society, 1856). Writing of liver abscess he says:—

"If the process incline inwardly, nature is far superior to the physician . . . but if it incline outwards, it is bad not to make an incision, for otherwise the liver is corroded by the pus, and death is not long deferred. But, if you intend to make an incision, there is a danger of hæmorrhage, from which the patient may die suddenly; for hæmorrhage in the liver cannot be checked. But if you are reduced to the necessity of making an incision, heat a cautery in the fire to a bright heat and push it down to the pus, for it at the same time cuts and burns; and if the patient survive, there will run out a white, concocted, smooth, not fetid, very thick pus, by which the fever and other bad symptoms are diminished, and altogether the health is restored."

Dr. Manson-Bahr also stresses the diagnostic importance of right shoulder pain, which we now believe to be due to involvement of the under surface of the diaphragm and reference via the phrenic to the fourth cervical area. With this symptom of hepatic abscess Aretæus was quite familiar, though his interpretation of it was different. In referring to inflammations of the liver, he states:—

"If it be converted into pus, a sharp pain possesses the parts as far as the clavicle and the tops of the shoulders, for the diaphragm from which the liver is suspended is dragged down by the weight, and the diaphragm drags the membrane lining the ribs to which it is attached, and this membrane (the pleura) is stretched up to the clavicle and the top of the shoulders, which also are dragged down."

He further recognises that the painful, difficult respiration which may be present is due to impairment of diaphragmatic movement . . . "for," he says, "the diaphragm does not coöperate with the lungs, by assisting them in contraction and dilatation."

I am, Sir, yours faithfully,

J. A. RYLE.

The Warden's House, Guy's Hospital, S.E., May 14th, 1923.

THE DOSE OF BAYER "205."

To the Editor of THE LANCET.

SIR,—In view of the dearth of experience at present available as to the dosage of Bayer "205," it may be worth while recording that as much as 5 g. have been given intravenously in 50 hours to a native of this country. There were no untoward symptoms, but although no readily recognisable albuminuria resulted the presence of a few casts in the urine could be detected for a month afterwards. During the last few months, however, no casts have been seen and the patient is back at work. The dosage suggested by Dr. G. C. Low and Dr. P. Manson-Bahr for the treatment of Europeans may require modification when the African native for whom the drug was prepared comes to be treated. His greater tolerance may enable him to receive a single curative dose of 3 to 5 g. or more. I am indebted to the courtesy of Dr. C. H. Hennings for placing a small quantity of the drug at my disposal.

I am, Sir, yours faithfully,

N. A. DYCE SHARP,

Kaduna, Nigeria, April 19th. West African Medical Service.

OTITIC MENINGITIS.

To the Editor of THE LANCET.

SIR,—In the report last week of my paper on Otitic Meningitis, read before the Section of Otology of the Royal Society of Medicine, there is an error which reads: "Otitic meningitis of the middle fossa and cortex of the brain was much more frequent than that of the posterior fossa." It should be infrequent. The large majority of cases of otitic meningitis commence in the posterior fossa, and involve the base of the brain.

I am, Sir, yours faithfully,

Harley-street, W., May 14th. EDWARD D. D. DAVIS.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, MAY 10TH.

Dangerous Drugs and Poisons Bill.

THE Dangerous Drugs and Poisons Bill was read a third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, MAY 9TH.

International Labour Conference.

Sir M. BARLOW (Minister of Labour) moved: "That this House approves the policy of H.M. Government respecting the draft conventions and recommendations adopted by the third and fourth sessions of the International Labour Conference held at Geneva in 1921 and 1922 respectively." He said that the subject of the use of white lead in paint proved a very contentious one at the 1921 Conference. The workers pressed for an international effort along the lines of eliminating altogether what they held to be a serious peril in industrial life. On the other hand, evidence was adduced, both as to the greater effectiveness of paint containing white lead and also as to the possibility of minimising, if not eliminating, the peril to the worker if proper precautions were taken. The British Government had reserved freedom of action in the matter, and proposed to have further consultation and to take up, if necessary, with the labour organisation at Geneva the question of the amendment of the draft convention. Article 1 of which prohibits, with certain definite exceptions, the use of white lead or sulphate of lead in the internal painting of buildings; and Article 3 of which prohibits, with certain exceptions, the employment of males under 18 years of age, and of all females, in any painting work of an industrial character involving the use of white lead. The second recommendation at the 1921 Conference dealt with the protection, before and after childbirth, of women wage-earners in agriculture. This raised the whole question of the famous Washington Maternity Convention, which the Government had refused to ratify on the ground that we had already, under the National Health Insurance Act, and the Factory Acts, a scheme of this sort. The Washington Maternity proposals were, to some extent, more intensive, and the existing English provisions were clearly much more extensive. For each woman affected, the Washington provision would give rather more elaborate protection. For instance, they would require six weeks off work before and after confinement; while the analogous provisions of our Factory Act was four weeks off work after confinement. On the other hand—and this was the great difference—the Washington Maternity proposals only affected women who were themselves engaged in industry. In this country there were about 440,000 married women so engaged. But the English provisions under the Health Insurance Act covered, not only women engaged in industry, but the wives of employed contributors under the Act. Further, the Maternity and Child Welfare Act, 1918, and the schemes of local authorities under that Act, with the aid of the State grant, provided for the use of all women such services as midwives and doctors, post-natal treatment, supply of milk, and so on. In these circumstances, and for reasons similar to those which prompted the late Government to refuse to ratify the Washington Maternity Convention for industry generally, the Government did not propose to accept this recommendation. The Government proposed to accept the recommendation that women wage-earners in agricultural undertakings during the night should be given not less than nine hours, if possible consecutive, off work. It was proposed also to accept a recommendation of a similar character providing for not less than ten hours off work for children under the age of 14 years of age of either sex, and female young persons of between 14 and 18 years of age. On a division Sir M. Barlow's motion was carried by 235 votes to 176.

Milk for Infants and Children.

Mr. HOPE SIMPSON asked the Minister of Health whether he proposed to take any action in accordance with the recommendations of the Departmental Committee on Distribution and Prices of Agricultural Produce, recorded in para. 142 of their Interim Report on milk and milk products, with the object of stimulating the consumption of liquid milk by infants and children; and whether he would consult other departments concerned, including the Board of Education, in furtherance of this object.—Mr. NEVILLE CHAMBERLAIN replied: This matter is under consideration. I may, however, remind the hon. Member that a circular and pamphlet were issued by my department in October, 1920, in regard to the use of milk, in which advice was given as to the best

means of disseminating information on the special value of milk as a food, the desirability of largely increasing the consumption per head of the population, and the need for an adequate supply of fresh and pure milk.

The Cost of Slum Clearances.

Captain WEDGWOOD BENN asked the Minister of Health on what grounds he based his estimate of £230,000 as the money required to assist local authorities in slum clearance in any one year; and whether, if local authorities demanded a larger sum, the necessary estimates would be introduced.—Mr. NEVILLE CHAMBERLAIN replied: The estimate of £230,000 referred to in the memorandum explaining the financial provisions of the Housing Bill was the best estimate that could be made of half the annual deficit on schemes to be approved under Clause 1 (3) of the Bill which local authorities might be expected to carry out in the near future. If local authorities submit schemes which would involve in the aggregate a larger contribution from the Exchequer the matter will be further reviewed on the annual estimates.

Small-Pox in Doncaster.

Mr. BROMFIELD asked the Minister of Health whether he was aware that two cases of small-pox were recently removed from a street in Doncaster three weeks after vaccination had been performed in each case; and whether any other small-pox cases at Doncaster, or elsewhere, during the past two months had developed after recent vaccination.—Mr. NEVILLE CHAMBERLAIN replied: The answer is in the negative. I am informed by the medical officer of health that in no case has small-pox occurred in Doncaster after recent vaccination where the interval between vaccination and the development of the disease has exceeded 14 days; and I am not aware of the occurrence of any such case elsewhere during the past two months.

Minimum Salary for Health Visitors.

Mr. ALBERT BENNETT asked the Minister of Health if he could now make any statement for the guidance of local authorities as to the reasonable standardised minimum salary which should be offered by them to health visitors.—Mr. NEVILLE CHAMBERLAIN replied: The salaries of health visitors cannot be considered without reference to other analogous occupations, and the general question is still under my consideration. I am arranging that a deputation on the subject shall be received at my department shortly, when I hope that the situation will be further elucidated.

Dental Registration Fees.

Mr. SEXTON asked the Minister of Health if, in accordance with the statement of the chairman of the Dental Board in the House on March 8th, 1922, any attempt to lessen the annual fees demanded from dentists registered under the Dentists Act, 1921, was to be made in the year commencing January, 1924.—Mr. NEVILLE CHAMBERLAIN replied: The undertaking to which the hon. Member refers was an undertaking to reconsider the fee in two years' time from March, 1922. No undertaking was given that the fee would be reduced. I am informed that the Dental Board will duly consider the matter in accordance with the undertaking given by their chairman, but they are not yet in a position to come to a decision.

Overcrowding and Tuberculosis.

Mr. TREVELYAN asked the Minister of Health what proportion of the patients under the care of the London tuberculosis dispensaries lived in dwellings with one or two rooms only; and whether he intended to make any special provision for dealing with the overcrowding in the Metropolitan area.—Mr. NEVILLE CHAMBERLAIN replied: I have no information as to the first part of the question. As to the second part, overcrowding in the Metropolitan area will be automatically reduced as the erection of new houses proceeds.

Administrative Allowance of Approved Societies.

Sir KINGSLEY WOOD asked the Minister of Health when he proposed to lay before Parliament the draft of the regulation to reduce the administrative allowance of approved societies; and what opportunity would be afforded of Parliamentary discussion.—Mr. NEVILLE CHAMBERLAIN replied: The draft regulation referred to by the hon. Member will be published within the next few days and the regulation will be made and laid before Parliament as soon as the statutory period of 40 days has elapsed. There will be usual opportunities for Parliamentary discussion under the procedure whereby the regulation becomes operative unless within 21 sitting days either House signifies its disapproval.

Exemptions from Vaccination.

Sir WALTER PRESTON asked the Minister of Health what percentage of newly-born children were vaccinated in 1907; what percentage of children were vaccinated in 1922; and what was the total number of exemptions from vaccination granted in 1907, and the total number of exemptions in 1922.—Mr. NEVILLE CHAMBERLAIN replied: In 1907 70.9 per cent.

of the newly-born children were vaccinated; in 1921 the percentage was 38.3. The total number of exemptions from vaccination was 76,709 in 1907, and 382,155 in 1921. Figures for 1922 are not yet available.

Small-pox Statistics.

Mr. BECKER asked the Minister of Health if he could give figures showing the number of small-pox cases and suspected cases notified during 1921, 1922, and for the first three months of 1923.—Mr. NEVILLE CHAMBERLAIN replied: The following are the figures:—

Period.	No. of cases notified.	Other cases reported but not notified.	Cases subsequently withdrawn or not regarded as small-pox.	Net total of cases.
1921 ..	343	23	30	336
1922* ..	1042	17	80	979
1923† ..	533	5	18	520

* The figures are provisional, as full particulars of certain cases have not yet been received.

† First three months.

Infanticide.

Mr. WILLEY asked the Secretary of State for the Home Department whether, in view of the fact that in 1922 the Infanticide Act was passed providing that a woman charged with the murder of her infant child may, under certain conditions, be convicted of manslaughter, he could state how many women were now in gaol for offences which, had this Act existed at the time of their conviction, would have come under it; whether he would give the average term of imprisonment they had collectively suffered; whether the Home Office had reviewed all such cases; and, in that event, how many women had been released, how many had had their sentences reduced, and how many had not been notified of any concession whatever.—Mr. BRIDGEMAN replied: Only one woman convicted before the passing of the Infanticide Act and sentenced to death for the murder of her newly-born child is now in prison. She had served a previous sentence of 18 months for the manslaughter of another child. She has now served 26 months under her present sentence. Further interference with the sentence cannot yet be recommended.

Canadian Cattle and Tuberculosis.

Lieut.-Colonel FREMANTLE asked the Minister of Agriculture if his attention had been called to the report of the medical officer of health to the Manchester port sanitary authority to the effect that the first batch of Canadian cattle were not altogether free from pulmonary tuberculosis; and what steps were being taken to test imported cattle for tubercle infection and to exclude the importation or distribution of cattle so infected.—Sir R. SANDERS replied: The reply to the first part is in the affirmative. Canadian store cattle imported into this country are not required to undergo a test as to freedom from tuberculosis. Cattle affected with tuberculosis to a dangerous degree would be liable to be dealt with under the Milk and Dairies (Amendment) Act, 1922.

Post Office Medical Referees' Reports.

Mr. AMMON asked the Secretary to the Treasury whether he would consider introducing a regulation to enable Post Office employees appealing to a medical referee to be supplied with a copy of the referee's decision, for which the appellant pays.—Sir WM. JOYNSON-HICKS (Postmaster-General) replied: The referee's report is made in confidence; and there would be strong objections to its being communicated to the appellant. The deposit paid by the latter does not represent the referee's fee.

THURSDAY, MAY 10TH.

Appeal Tribunal Cases.

Mr. PIELOU asked the Minister of Pensions the number of cases brought before the House of Lords appeal tribunal, Birmingham, for the six months ending Dec. 31st, 1922, and also for the same period in 1921; and if he would state the result of these appeals.—Colonel GIBBS replied: During the six months ending Dec. 31st, 1921, eight tribunals sat at Birmingham. During the six months ending Dec. 31st, 1922, five tribunals sat at that centre. The results of the sittings during the two periods in question were as follows: (1) Six months ending Dec. 31st, 1921: Heard, 2746; allowed, 693. (2) Six months ending Dec. 31st, 1922: Heard, 1285; allowed, 312.

Lip-Reading and Ex-Service Men.

Captain BERKELEY asked the Minister of Pensions whether lessons in lip-reading were granted as of right to all ex-Service men suffering from deafness due to war service; whether he was satisfied that 25 lessons were sufficient to enable unlettered or backward men to acquire proficiency in lip-

reading; and whether, if cases could be brought to his notice of men who had been unable to learn lip-reading in the prescribed number of lessons, he would be prepared to increase the number of lessons in such cases.—Major TRYON replied: Where a man is likely to benefit by it, instruction in lip-reading is provided by my department. After a certain amount of instruction proficiency in lip-reading is entirely dependent upon regular practice, and it is the considered opinion of my advisers that a course of 25 lessons affords the man of average intelligence ample opportunity of acquiring the faculty. Experience has shown, however, that the unlettered man of less than normal intelligence is incapable of acquiring facility in the art. I shall be pleased to inquire into any individual cases if the hon. and gallant Member will let me have particulars.

Motor Cycle Pillion Accidents.

Mr. BURGESS asked the Secretary of State for the Home Department the number of serious and fatal accidents, respectively, which had occurred during each year since 1919, as a result of riding on the pillions of motor bicycles.—Colonel ASHLEY (Parliamentary Secretary to the Ministry of Transport) replied: No separate record is kept, either by the Home Office or by my department of accidents in which motor cycles with pillion riders are involved. Although the Minister of Transport is not vested with any legal powers in the matter, it is the practice of my department to hold informal inquiries and inspections into the circumstances attending all serious road accidents. There is no evidence, so far as these investigations go, that accidents on the nature referred to are particularly frequent, or show any tendency to increase in number.

Deafness among Children.

Mr. FOOT asked the President of the Board of Education the number of children in the special schools for teaching the deaf; and if there were any statistics to show the number of deaf children in the country for whom no educational provision was made.—Mr. E. WOOD replied: The accommodation in the certified special schools for the deaf is 4636. The latest returns from local education authorities show that there are approximately 6000 deaf and dumb and partially deaf children in the country. On the basis of these figures the provision for such children in special schools is deficient by about 1400 places.

Cost of Tuberculosis Treatment.

Mr. LEACH asked the Minister of Health the total amount spent by local authorities on tuberculosis treatment during 1922.—Lord E. PERCY replied: The gross expenditure of local authorities during the financial year ended March 31st, 1923, is estimated to amount to £2,813,610, exclusive of capital expenditure for which particulars are not yet available.

Death-Rate in Doncaster.

Mr. RILEY asked the Minister of Health what was the death-rate in the Doncaster rural area, and what was the infant mortality in this district.—Lord E. PERCY replied: In the year 1922 the death-rate in the Doncaster rural district was 12.2 per 1000 living, and the infant mortality-rate 89 per 1000 births.

Medical Officer of Health at Frizington.

Mr. GAVAN-DUFFY asked the Minister of Health if he would state what salary was paid per annum to the late medical officer of health at Frizington, Cumberland; if his salary was fixed by agreement; had the period stated in that agreement expired; if not, had he agreed to its cancellation, and, if not, why had the Minister of Health agreed to the appointment of a second medical officer of health before the agreement with the first one had expired or been properly terminated; could he state if the present medical officer of health for Frizington had any qualification in the public health service, and at what salary he had accepted the position.—Lord E. PERCY replied: The salary for this part-time appointment agreed between the Council and the medical officer of health was £130 per annum, rising by £5 per annum to £150. His appointment was terminable by the council without my consent at three months' notice, which was given to expire on March 31st last. The council advertised the vacancy at £100 per annum, and have had one applicant, who has not a diploma in public health.

MONDAY, MAY 14TH.

Medical Practice in the Colonies.

Lieut.-Colonel FREMANTLE asked the Under Secretary of State for the Colonies in which colonies it had recently been considered necessary to amend the ordinances regulating medical practice in order to enable persons not holding qualifications registrable in the United Kingdom to practise medicine; and whether this modification of the standard required for registration or licensing of medical practice had the approval of the Secretary of State for the Colonies.—

Mr. ORMSBY GORE replied: The only three colonies in question (including dependencies) are British Honduras, Turks Islands, and St. Vincent. His Majesty has not been advised to disallow the ordinances in question, but in two of the three cases the governor has been instructed not to use the power conferred upon him without previous reference to the Secretary of State except in emergency. The Secretary of State attaches great importance to the maintenance of a high standard of professional qualification in the colonies, but he recognises that there may be circumstances in which rigid adherence to the rules in force in the United Kingdom are impracticable in some of the poorer or less developed communities.

Medical Officers in West Indies.

Lieut.-Colonel FREMANTLE asked the Under Secretary of State for the Colonies what payment had been made to the medical officers in the West Indian Colonies who have carried out treatment of yaws on an intensive system during the past four years; and what saving to the revenue had been effected by closing the hospital in Granada owing to the success of this treatment.—Mr. ORMSBY GORE replied: The medical officers in Granada undertook to perform this work without additional remuneration; but, as the committee appointed to inquire into the Windward Island Medical Service have recommended that some special allowance should be granted, the matter, together with the other recommendations of the committee, is receiving consideration. The Yaws Hospital was closed at the end of 1921. The cost in that year was £902; but as a certain amount of treatment is still being carried out, I am unable to say what proportion of this sum represents a saving.

Gas-poisoning Experiments.

Mr. LANSBURY asked the Under Secretary of State for War what species of animals were being used in gas-poisoning experiments at the Porton experimental station, near Salisbury: how many animals had been employed in the research since Feb. 23rd, 1922, when the figures were given in reply to a question by Mr. J. F. Green; and whether any of the experiments had consisted in dropping bombs containing poison gas among these animals.—Lieut.-Colonel GUINNESS replied: The species and numbers of animals which have been employed in the experiments referred to since Feb. 23rd, 1922, are as follows: cats, 66; goats, 48; guinea-pigs, 118; mice, 148; monkeys, 23; rabbits, 139; rats, 209. None of the experiments have consisted in dropping bombs containing poison gas among these animals.

Open-air Schools for Children.

Mr. FOOT asked the President of the Board of Education the number of local education authorities who had established open-air schools for the reception of children suffering from physical disability, and the total number of such schools now established throughout the country.—Mr. E. WOOD replied: Twenty-nine local education authorities have established 37 day open-air schools, and nine have established 13 residential open-air schools. In addition, voluntary managers have established 12 residential open-air schools; making a total of 62 open-air schools in England and Wales.

Alleged Contraventions of Lunacy Act.

Mr. THOMAS GRIFFITHS asked the Attorney General whether any steps had been taken by the Board of Control to inquire into the number of instances in which the managers of mental institutions run for profit had themselves taken measures, in contravention of the Lunacy Act, to summon doctors and magistrates for the incarceration of voluntary boards; and in the case in which one such offence had been brought to light in the Law Courts had any disciplinary measures been resorted to by the Board to check the recurrence of abuse.—Mr. NEVILLE CHAMBERLAIN replied: The Board of Control have no record of any instance in which such action has been taken in contravention of the Lunacy Acts.

Dentists Act Amendment Bill.

The Dentists Act, 1921, Amendment Bill, introduced by Lieut.-Col. Dalrymple White, which provides that the age of ex-Service candidates for qualification as dentists shall be reduced from 23 to 21 years, was read a second time.

TUESDAY, MAY 15TH.

Medical Service in the Army.

Lieut.-Colonel FREMANTLE asked the Under Secretary of State for War if he was aware that, owing to discontent in the Royal Army Medical Corps, especially among the better qualified officers, many of the best had already resigned and others were prepared to send in their papers; and what steps he proposed to take to avoid such weakening of an essential arm of the service.—Mr. GWYNNE replied:

I am aware that an unsettled feeling has been caused in the army generally by uncertainty as to the future establishment and rates of pay, and by the conditions of service that have prevailed during the period of reconstruction after the war. In the case of medical officers the attractions of the civil profession have doubtless reinforced these causes. It is hoped that the army will now be able to return to normal settled conditions, and it is not proposed at present to take any special steps in regard to the Royal Army Medical Corps.

Neurological Hospital at Saltash.

Mr. FOOT asked the Minister of Pensions when the premises of the Queen Alexandra's convalescent centre at Saltash were to be used for the treatment of neurasthenic patients, and the number of such patients who were to be treated there.—Captain CRAIG replied: It is hoped that these premises will be ready for the accommodation of about 400 neurasthenic patients in the course of the next two months.

Medical Certificates and the Drug Habit.

Sir EDWIN STOCKTON asked the Secretary of State for the Home Department whether, in view of the increase of the drug habit, he was in possession of any information to show that there was any abuse of medical certificates containing drugs which did not contain words prohibiting repetition; and, if so, whether he would take any action thereon.—Mr. BRIDGEMAN replied: The regulations made under the Dangerous Drugs Act expressly provide that the drugs shall not be supplied more than once on the same prescription, with an exception for cases in which the prescription explicitly directs that the drugs may be supplied at specified intervals on not more than three occasions; and, in view of this, the Committee which considered the regulations thought it unnecessary to require that the words, "not to be repeated," should be inserted in the prescription. To obtain or supply drugs on a prescription otherwise than in accordance with the regulations is an offence against the Act; and I have no reason to think that the regulation in question is not generally observed.

Medical Officers of Pensions Ministry.

Mr. CAIRNS asked the Minister of Pensions what were the names, grade, and salary of the 33 whole-time medical officers in the employ of the Ministry who had not served in the forces of the Crown; where they were employed; and whether action would be taken to replace these officers by men who served in the great war and in consequence suffered financial loss.—Captain CRAIG replied: I regret that in the answer which I gave last week the number of non-Service medical officers was overstated, the correct number being 31. It is, and always has been, the policy of the Ministry to give preference to ex-Service candidates for appointments whenever that course can be followed consistently with due regard to efficiency.

DONATIONS AND BEQUESTS.—The late Mr. William Howard Palmer, of Wokingham, Berks, left by will £3000 to the Royal Berkshire Hospital.—Among other bequests the late Miss Anne Louisa Black, of Castle Bank, Cupar, Fife, left £1000 (in her own memory) of which the income is to be applied by the Sick Nursing Society and Women's Guild of Cupar in providing food and clothing on the lines of the Samaritan Society and for small pensions to deserving women; £1100 for division between the Royal Infirmary, Edinburgh, and the Longmore Hospital; £1000 (in memory of her late brother Dr. Alexander Black) upon trust to apply the income in the provision of bursaries, scholarships, library books, or other purposes in connexion with the Royal College of Physicians, Edinburgh; £500 to the Adamson Cottage Hospital, Cupar, for an Anne Louisa Black bed for women and children; £500 to the Sick Children's Hospital; £500 to the Royal Blind Asylum for the training of men blinded in the war; and £100 to the Dundee Royal Infirmary. Certain residues of the property will go to the Sick Nursing Society, Cupar; the Edinburgh branch of the National Society for the Prevention of Cruelty to Children; the Edinburgh Royal Infirmary, and other charitable institutions.—Among other bequests the late Mrs. Mary Alice Clegg, of Alston Lodes, Waterhead, Oldham, left £1000 to the Oldham Royal Infirmary; £250 each to St. Dunstan's Blinded Soldiers' Fund, Oldham Poor Children's Holiday Fund, and the Society for the Prevention of Cruelty to Children; £100 to the R.S.P.C.A. The residue of the estate, if not exceeding £8000, to be divided between the Oldham Educational Committee for Scholarships, and for certain schools.—Lord Glendyne has given £200 in response to the appeal for £30,000, urgently required by the Cancer Hospital, Fulham-road, for the fitting up of an operating theatre and for structural alterations.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An extraordinary Comitia of the College was held on May 10th, the chair being taken by Sir Humphry Rolleston, the President. The following were admitted as Fellows, having been elected to the Fellowship at the last Comitia: Drs. R. Hingston Fox, J. Porter Parkinson, D. G. Hall, W. S. Fox, F. E. Tylecote, J. Owen, L. G. Parsons, John Parkinson, A. H. Gosse, and P. H. Manson-Bahr. The following were nominated by the Council: Sir Hugh Kerr Anderson, M.D., and Dr. Byrom Bramwell. A letter was read from Dr. J. J. Perkins resigning his examinership in medicine as from July next. A report was received from Dr. Drewitt, who represented the College at the bicentenary of the death of Sir Christopher Wren. A vote of thanks for his services and for his report was accorded to Dr. Drewitt. Dr. Edwin Goodall was appointed a representative of the College at the University of Wales vice Dr. H. W. G. Mackenzie resigned. The thanks of the College were accorded to Dr. Mackenzie. An address to His Royal Highness the Prince of Wales, President of St. Bartholomew's Hospital, on the occasion of the 800th anniversary of its foundation, was sealed. The President then dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary Council meeting was held on May 10th, with Sir Anthony Bowlby in the chair. Surgeon Vice-Admiral Sir Robert Hill was introduced and was admitted a Fellow of the College. A report from the Court of Examiners respecting candidates found qualified for the diploma was read, and diplomas were granted to 155 candidates mentioned in the report. A report was read from the Secretary to the Conjoint Examining Board respecting candidates found qualified for the Diploma in Public Health, and diplomas were granted, jointly with the Royal College of Physicians, to 20 candidates mentioned in the report. A report was read from the Secretary to the Conjoint Examining Board respecting candidates found qualified for the Diploma in Tropical Medicine and Hygiene, and diplomas were granted, jointly with the Royal College of Physicians, to 10 candidates mentioned in the report. Mr. Hugh Lett, F.R.C.S., was elected a Member of the Court of Examiners. A letter was read from the Clerk to the Barbers Company stating that the Court of the Company had resolved that, subject to the consent of the Royal College of Surgeons, the Thomas Vicary lecture should be continued for a further period of five years. The Council agreed to accept the offer.

A HOSPITAL FOR RICKETS NEAR DUBLIN.—A committee has been formed in Dublin, under the chairmanship of Dr. Ella G. Webb, for the purpose of establishing a hospital for rickets near Dublin. At present the accommodation for children in the special and general hospitals of the city is sufficiently taxed, and there is no institution specially suitable to deal with cases of rickets. A lady has offered the committee £5000, and it is believed that if another £5000 can be obtained there will be enough to meet initial expenses. Near Dublin there are plenty of sunny sites with sea or mountain air suitable for treating such cases.

MANCHESTER AND DISTRICT RADIUM INSTITUTE.—At the annual meeting held in Manchester on May 10th the chairman expressed his appreciation of the fact that the Institute was progressing satisfactorily in every way except financially. The expenditure has exceeded income by several hundred pounds, though the cost of radium has fallen by about 40 per cent. During 1922, 799 persons presented themselves at the Institute with a view to radium treatment; 514 emanation plates and 1281 emanation tubes were made during the year, and 59 cases of malignant disease, exclusive of rodent ulcer, were rendered free from signs and symptoms of disease. The total number of malignant cases treated was 584, and the usual average of something over 10 per cent. of perfect immediate results had been maintained. The number of rodent ulcers treated was 85, and 41 had apparently been cured, in addition to 15 patients suffering from non-malignant conditions. The attendances were 4000 of out-patients and 912 of in-patients. It was also stated that Dr. J. Holker had studied the effects of alpha, beta, and gamma rays on serum. These rays, it was found, had a marked effect on serum and on its colloidal condition—a condition for the determination of which by a special technique only a very small quantity of blood was required. The colloidal changes in blood due to absorption of a vaccine injected subcutaneously could be followed by this method. A natural extension of this work would be to follow the colloidal changes in blood due to the absorption of the products of the destruction of a tumour in a patient who was treated by radium.

INDIAN MEDICAL SERVICE: ANNUAL DINNER.—This dinner will be held on June 20th, at 7.45 P.M., at the Trocadero Restaurant, London, W. 1.

ST. PAUL'S HOSPITAL.—The annual board of governors will be held at the "Pickett-Thomson" Research Laboratory, St. Paul's Hospital, Endell-street, London, W.C. 2, on Wednesday, May 23rd, at 4 P.M.

UNIVERSITY OF MANCHESTER.—Prof. J. S. B. Stopford has been appointed Dean of the Medical School from September next in succession to Prof. R. B. Wild. A ceremony for the conferment of degrees in the Faculty of Medicine will be held on July 14th.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE.—The new building for the Bacteriological Department will be opened next Friday, May 25th. Visitors will be received by Sir David Drummond, president of the College of Medicine, in the King's Hall, Armstrong College, at 4.30 P.M., and at 5 P.M. an address will be delivered by Sir Frederick Andrewes in the Physics Lecture Theatre. The opening and inspection of the new building will follow.

LLANDRINDOD WELLS OPEN MEDICAL GOLF CHALLENGE CUP.—This event was played off on May 2nd, 3rd, and 4th. The winner was Dr. D. Saunders Jones, who beat Dr. F. C. Hunot, the winner last year, by 6 and 5. Lady Mayo Robson presented the cup and replica. The competitors were entertained to luncheon at the Golf House by the local committee. Toasts were proposed and responded to by Dr. Jones-Evans and Dr. Baird, who spoke highly of the claims of Llandrindod as a health resort.

WELLINGTON (N.Z.) GENERAL HOSPITAL.—At a meeting of the Hospital Board held on March 22nd it was decided to provide over a three-year period a sum of £150,000 to remodel and extend the hospital, the additions to include a new admission block and a new genito-urinary block. If the board could establish its right to incur such expenditure, it was agreed to send the medical superintendent, Dr. D. McD. Wilson, on a visit to the U.S.A. and Canada, in order to study the latest hospital methods.

COURSE ON MEDICAL HYDROLOGY.—This course, already announced as taking place from May 29th to June 2nd, will include lectures at the University of London, South Kensington, and demonstrations at the National Institute for Medical Research, Hampstead, at the Special Surgical Hospital at Shepherd's Bush, and at Harrogate. Medical students interested in physical methods of treatment are invited to avail themselves of the course, without fee. Those who propose to attend are asked to send their names, preferably before May 21st, to the Hon. Secretary, Dr. W. Edgecombe, c/o University Extension Department, University of London, South Kensington, S.W. 7.

ANCOATS HOSPITAL, MANCHESTER.—At the ninety-fourth annual meeting it was stated that there was still a deficit of £8000 on the new nurses' home. The number of in-patients in 1922 was 2307, compared with 2194 in the year before, and of out-patients 8937 compared with 9132; accident cases numbered 18,912, against 17,361; 1329 major operations were performed, against 1139 in 1921; and 477 minor operations, against 722. Attendances at the X ray department 3395, compared with 3156. There was a decrease of £2938 in income, attributable to the severe trade depression, but the workpeople's contributions continued to be maintained. Expenditure showed a reduction of £3691.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—The report for 1922 will be submitted to the annual meeting, which is to be held at 11, Chandos-street, London, W. 1, on May 23rd at 5 P.M. Since the last report seven new members have been elected and four have been lost owing to death and resignation. The Society now consists of one honorary, 166 life, and 139 ordinary members, making a total of 306. During the year the Society has suffered the loss of its President, the late Sir Alfred Pearce Gould, Dr. F. de Havilland Hall being elected to take his place. The invested capital of the Society now stands at £146,650; under the by-laws only income may be used for the payment of grants and expenses. The income from investments amounted to £4744, £321 was received from subscriptions and donations, making a total income of £5065; the working expenses were £335. During the year three widows came on the funds and three died; on Dec. 31st, 1922, there were 51 widows and four orphans in receipt of grants. £4407 10s. was distributed in grants during the year. The income limit for widows has been raised from £100 to £125, and that of orphans from £50 to £60, so that in future any widow of a member left with an income of £125 or under and any orphan with an income of £60 or under, is eligible to receive a grant from the Society.

GRESHAM LECTURES ON PHYSIC.—Sir Robert Armstrong-Jones will deliver four lectures at Gresham College, in the City of London, at 6 P.M., on Tuesday, May 22nd, and the three days following. The subject will be Medical Hydrology and Hydropathy, with special regard to the climate of health resorts in England and Wales. The lectures are free to the public.

MEDICAL GOLFING SOCIETY.—The annual summer meeting of this society will be held at Addington Golf Club on June 14th. All medical men on the Register are eligible for membership of this society. Entries for the meeting must be accompanied by the annual subscription of 10s., if due, and should be sent, with lowest handicap, to the hon. secretary, Dr. Rolf Creasy, jun., 25, Devonshire-place, London, W., on or before Monday, June 11th.

SOUTHAMPTON AND DISTRICT ANNUAL MEDICAL DINNER.—The fourth dinner was held on May 9th at the South Western Hotel, Southampton, and was well attended. The chairman, Dr. G. S. Farquharson, made a reference to the late Dr. W. P. Purvis, whose memory was honoured in silence. A musical programme was supplied by Mr. Leonard Munn and Dr. H. L. Hamilton, and a very entertaining evening was spent.

INVERNESS HOSPITAL.—The annual report states that the total number of patients for the year was 869 in-patients and 400 out-patients, a considerable number of the latter being discharged soldiers and sailors. H.M. the Queen visited the hospital on August 24th, when she inspected the children's wards and other parts of the institution. The year opened with a debt of £2762 and closed with a balance of £1569, the apparent improvement being due simply to the withdrawal of capital which had been necessary to meet deficiency in revenue for some years.

HERTFORDSHIRE COUNTY SANATORIUM.—On May 7th the new sanatorium established by the Hertfordshire County Council at Ware Park, near Hertford, was opened by the Marchioness of Salisbury. Sir George Newman, Chief Medical Officer of the Ministry of Health, stated in the course of a short speech that although 100 persons a day died of what John Bunyan called "the captain of the men of death," there was undeniable evidence that tuberculosis was curable for the large proportion of the population affected by it, to the extent, at least, that they might be restored to a long period of useful life. In 1850 the deaths were 3200 per million, but the number was now 800, or a reduction to one-fourth in about 70 years.

ROTARY INTERNATIONAL ASSOCIATION: A SECTION OF MEDICINE AND PHARMACY.—At the invitation of Councillor George Whitfield, who is himself a pharmacist, 20 Rotarians connected with pharmacy, medicine, and allied professions met at the Mayor's parlour, Scarborough, on May 9th, for the purpose of constituting a vocational section. Dr. T. Stephenson, of Edinburgh, interim convener, occupied the chair. It was decided to include registered pharmacists, together with the allied professions of medicine, dentistry, veterinary surgery, and analytical chemistry. Dr. Stephenson was elected chairman for the ensuing year, and Mr. Kenneth McLennan, of Edinburgh, was appointed hon. secretary to the section. An executive was elected, consisting of the chairman, with Major E. Saville Peck (Cambridge) and Sir T. Robinson (Dublin). The first regular meeting of the section will be held in London in July, during the British Pharmaceutical Conference.

"AMBULANCE."—Hitherto the only publication issued by the College of Ambulance has been a small booklet brought out each term. Last month saw the first issue of a new quarterly magazine entitled *Ambulance*, which will supersede the former publication, and is intended to be not only a chronicle of the work of the College, but also a link between all at home and abroad who are interested in the various subjects which may be grouped together as ambulance work in general. Sir James Cantlie contributes an article on the Origin of Ambulance Work; Dr. W. Salisbury Sharpe writes of the Use and Abuse of Tourniquets, and Dr. F. R. G. Heaf of the Tuberculous Patient's Life After the Sanatorium, whilst the "Bookshelf" is arranged by Dr. T. N. Kelynack. Amongst other contents of interest are an article on Pestology by Mr. A. E. Moore, director of the Incorporated Vermin Repression Society; an account of a Sudan cholera camp during Kitchener's Nile campaign of 1896, by Mr. E. F. Knight; and a sketch entitled *Medicine Men*, by Mr. E. E. Bond, who indicates the value of knowledge of first aid in an uncivilised and, in this instance, a tropical country, beyond the sphere of qualified medical practice. We wish this new venture a wide success in its work of education towards public health. The magazine is to be obtained only at the College of Ambulance, 56, Queen Anne-street, Cavendish-square, London, W. 1. Annual subscriptions, 2s. 6d. Single copies, 6d., post free 8d.

MEDICAL SOCIETY OF LONDON: ONE HUNDRED AND FIFTIETH ANNIVERSARY.

THE one hundred and fiftieth anniversary of the founding of the Medical Society of London was celebrated by a dinner at the Hyde Park Hotel on May 15th, the Prince of Wales being the principal guest. Lord Dawson of Penn, President of the Society, occupied the chair, and there were present prominent representatives of the learned, scientific, and artistic professions, including—

The Lord Chief Justice (Lord Hewart), Viscount Astor, Viscount Burnham, Viscount Gladstone, Viscount Knutsford, Lord Kenyon, Lord Riddell, Lord Justice Atkin, Mr. Lloyd George, Mr. Neville Chamberlain, Sir W. M. Abbott-Anderson, Sir T. Clifford Allbutt, Sir Charles Allom, Mr. Donald Armour, Sir Charles Ballance, Sir P. W. Bassett-Smith, the Bishop of Birmingham, Prof. Blair Bell, Sir David Bower, Sir Charlton Briscoe, Sir John F. H. Broadbent, Prof. C. K. Clarke (Toronto), Sir Frank Colyer, Sir Maurice Craig, Sir Anderson Critchett, Prof. E. Emrys-Roberts, Sir Crisp English, Sir Walter Fletcher, Dr. Herbert Morley Fletcher, Sir Robert Fox-Symonds, Sir Archibald Garrod, Lieut.-General Sir John Goodwin, Sir Robert Hadfield, Sir E. Marshall-Hall, K.C., Sir William Hale-White, Sir William Hamer, Surgeon-Vice-Admiral Sir Robert Hill, Sir Arthur Holbrook, Sir Thomas Horder, Sir Robert Jones, Sir Arbuthnot Lane, Sir Arnold Lawson, Major-General Sir William Leishman, Sir John Lynn-Thomas, Sir John MacAlister, Sir Frederick Mott, Mr. C. A. McCurdy, K.C., M.P., Sir George Newman, Sir William Orpen, Sir Charles Parsons, Sir Cooper Perry, Sir Arthur Pinero, Sir Richard Powell, Sir D'Arcy Power, Sir James Purves-Stewart, Sir James Reid, Sir Arthur Robinson, Sir Milsom Rees, Sir Hugh Rigby, Sir Leonard Rogers, Sir Samuel Sheaf, Sir Charles Sherrington, Lieut.-General Arthur Sloggett, Sir Squire Sprigge, Sir Arthur Stanley, Mr. St. Loe Strachey, Sir Harold Stiles, Sir C. Gordon-Watson, Sir Aston Webb, P.R.A., Sir Dawson Williams, Sir J. Thomson Walker, Sir William de C. Wheeler, Dr. Douglas Webster, Sir Alfred Yarrow, and many other well-known members of the medical and other professions.

The toasts of the King and the Queen, Queen Alexandra, and the other members of the Royal Family having been duly honoured, the PRESIDENT gave the toast of "Our Principal Guest, H.R.H. the Prince of Wales" and in doing so remarked that his Royal Highness followed the traditions of his illustrious ancestors in his interest in medicine both as a branch of learning and as an instrument for promoting the health of the nation. In anything which appertained to the interests of our hospitals and their work they might always rely upon his encouragement and support. That interest owed its strength to an appreciation of the other man's difficulties to a kindly feeling for human frailty—qualities which brought unity and goodwill among men.

The PRINCE OF WALES, in replying, said that it was a common boast among members of the medical profession that they practised the oldest science known to man. It was almost impossible to imagine an age so fortunate as to need no doctors, and probably the only reason why there were no doctors in the Garden of Eden was that Eve obviously knew the familiar prescription. "An apple a day keeps the doctor away." As one who had had a long experience of the kindness of heart characteristic of members of the medical profession, his Royal Highness said he should be ungenerous if he did not feel thoroughly at home in such a company as the present. Nobody who had had as much to do with hospitals, military and civil, as he had could have failed to discover that there was something about the art of healing which had a particularly good effect on those who practised it. Whether in a regimental mess or a ship's ward—

room, whether a hospital man or a general practitioner, the doctor was always a man of many friends. Speaking of the general practitioner, he would like to pay him a special tribute. He was a very devoted, and sometimes unrecognised, friend to the community. On him, in the long run, the health and well-being of the community depended, and in his hands to a great extent lay the honour of the profession as a whole, since for the majority of people he was the only representative of it with whom they came in contact. He, the Prince of Wales, was glad to see present three distinguished physicians from the United States of America. Being one of their fellow guests, he could not welcome them to the gathering, but as a real and sincere friend of America he welcomed them to our country.

The Prince of Wales then proceeded to point out a close connexion between such a Society as that whose one hundred and fiftieth birthday they were celebrating, and the national institution which he was always proud to help to the best of his ability—our national hospital system. The Medical Society was founded in 1773, towards the end of a century in which every branch of thought was growing with almost tropical rapidity. The very fact of its foundation was a proof of the intellectual development of medicine, showing that it was passing from the twilight of quackery into the clear light of science. The progress of medicine always went hand in hand with the development of the hospital system, and just about this same date—the dawn of modern medicine—there sprang up in London a cluster of hospitals whose names were household words to-day—Guy's, St. George's, the London, the Middlesex, Queen Charlotte's, and others. And although that period, 150 years ago, was more remarkable for a series of those purely scientific achievements, without which medicine could not exist, yet throughout its history the growth of the Medical Society of London, and others like it, had moved on parallel lines with the growth of the modern hospital system as we knew it to-day. To most of those who stood outside the temple of medical science, the real significance of what went on inside was only intelligible by the concrete results which that system showed. Medical research was valueless to humanity, unless humanity could benefit practically by it. Brilliant doctors like Lister would have laboured in vain, unless there had been some medium through which the fruits of their labour could be broadcasted, so to speak, to the great mass of the sick and the suffering among the community. The hospitals were such a medium. They are at once universities and the workshops of medical science; the centres to which come both the doctor to get further technical knowledge, and the patient to get his share of its practical application. Without the hospitals, medical science would be, comparatively speaking, a barren thing. Consequently, the value of such a Society as this, from a national point of view, depended very largely on its relationship to the hospital system, and by that the public judged it.

The Medical Society of London owed its origin to the same quickening of interest in the common health which impelled Londoners of the later eighteenth century to enlarge the hospital system. It had grown up alongside it, and had never failed to be to it a loyal and helpful friend. Directly and indirectly, the Society as a whole and its individual members had proved this many times over.

MR. LLOYD GEORGE proposed the toast "Medicine and the Medical Society of London," coupling with it the name of Lord Dawson. Since the Society was founded there had been very great changes. It was only about 40 years before the founding of the Society that the barber and the surgeon separated. That was a very good indication of the state of medical science before the founding of this great Society. Immediately before that date the art of destroying human life had been perfected by scientific men from generation to generation, but the art of saving life had hardly moved. Science had been called in for destruction; science was regarded almost as an

intrusion when it came to the saving of life. Since then there had been almost incredible changes. There had been an age of unlocking the secrets of nature, and no profession had responded more readily to it than the medical profession. There was a time when the human body was like a lamb which is the prey of bandits—roving, skulking in recesses, issuing forth to pillage and to slay with impunity. The strong could resist; the weak invariably fell. Medical science helped; medical science hindered. Even the most expert did not know who the bandits were, where they came from, what they were like, how to deal with them. At last the whole dark continent of disease has been explored. These pirates have been discovered. They have been ticketed, they have been identified, they have been blacklisted, they have been tracked to their lair, and in the majority of cases they are exterminated for the benefit of mankind. More than that, the gathering grounds had been dealt with. It was a great thing that medical science had done; it had given human life a better fighting chance with the odds in its favour as long as the military age, in the medical sense, lasted.

His Royal Highness had referred to the work of the hospitals. One of the greatest tributes ever given to hospitals was given by King Edward VII., who, when Prince of Wales, was seriously ill. Sir William Gull, when he went to him, said: "You, Sir, are as well cared for as if you had been in hospital." The poorest men in the land get that care. The richer may get it, but I have doubts about the classes between. Medical science owed a great deal to hospitals, and it was right to remind the nation of that, at a moment when they are struggling with the adversities following the war, and when they have a heavy burden of debt. But the greatest advance of all in medical science was the advance it had made in preventive medicine. Recent history had taught us that it was a difficult, dangerous, and costly enterprise to expel an invader once he had a grip upon the soil, and that even if we succeed in expelling him, he left behind a devastated area which it took years to repair. That was equally true of human life and the human frame. Preventive medicine put up defences and kept the enemy from attacking and breaking through. The great business men of the world, like the Chinese, knew that it is better to pay your doctor to teach you how not to get ill than to pay him for getting you well. What was true of the individual was equally true of the community, and the great advance, in his judgment, which had been made was in sanitation, in water, in food, in the teaching and inculcation of habit; above all in the housing of the people.

LORD DAWSON, in responding, after referring to the history of the Society of which he was the President, said that medicine was not only based on an increasing range of sciences, but it was permeated by the scientific spirit, and there was an enthusiasm for research to a degree hitherto unknown. Men realised that if they were to do justice to themselves they must ever be weaving the thread of the sciences into the web of their art. Medicine had extended its realm from observation to precise investigation. The greatness of its progress was instanced by our knowledge of infection, immunity, asepsis, hormones, internal secretions, metabolism, and the like, and the conquest of malaria, yellow fever, and other tropical diseases. Further, investigation was organised, its results were collated, and its benefits made available. And here they owed a tribute to the Medical Research Council, the founding of which was due to Mr. Lloyd George. A striking example of a great discovery launched in the right way through the medium of this Council was insulin. Lord Dawson here paid a well-deserved tribute to the achievement of their distinguished colleagues at Toronto, who, by coördination between laboratory and ward, by results tested in selected hospitals in Canada, Great Britain, and the United States, with careful control by the Medical Research Council to secure efficient production, had put before the world a reliable remedy which would

give a considerable control of a fell disease. More than that, new encouragement would thus be given to the patient and never-ceasing endeavour to conquer the mystery of that great scourge cancer, which had so far baffled a multitude of distinguished workers in many countries. Discussing the statesmanship needed if medicine was to bring its gifts to the service of man, Lord Dawson said that medicine, to do its work, required equipment and the resources of special branches of knowledge, such as radiology, bacteriology, chemistry. To bring these advantages within reach of the general practitioner was a pressing problem which must receive all the help possible in its solution. The teaching hospitals were another aspect of the same problem, and their maintenance was a national concern. On them depended not only the future of doctors and nurses, but the setting of a high standard of work. To starve them was to damage the whole nation. The aim of statesmanship for medicine should be organisation along with freedom of thought and that liberty in action without which no science could do its work.

Sir JOHN BLAND-SUTTON, proposing in an amusing speech "Sister Professions and Guests," showed how the medical profession was ancillary to every other profession and the other professions to it. He hoped that the presence of ladies as guests that evening was an augury that during Lord Dawson's régime the barrier which prevented women from being members of the Medical Society would be removed.

Lord HEWART, Lord Chief Justice of England, responded for the Law, and Mr. NEVILLE CHAMBERLAIN, M.P., as Minister of Health. The latter remarked that his department desired to bring the great advances made in medicine and surgery within the reach of all, but new appliances and methods of treatment added to expense, and the problem was how to keep our great institutions fully equipped and abreast of the times without at the same time killing the sources from which magnificent voluntary contributions had come in the past. That problem had not yet been solved, but he was convinced that they would solve it in time.

Appointments.

BUTCHER, T. B., M.R.C.S., L.R.C.P. Lond., has been appointed Civil Surgeon, Muttra, U.P., India.
CARLETON, H. H., M.D., B.Ch. Oxf., M.R.C.P. Lond., Honorary Assistant Physician to the Bristol General Hospital.
CHRISTIE, G. W., F.R.C.S. Edin., Certifying Surgeon under the Factory and Workshop Acts for Ulverston.
CLEGG, S. J., M.D. Manch., D.P.H., Medical Officer of Health for Durban, South Africa.
ELISON, J., M.B., B.Ch. Camb., F.R.C.S. Edin., Out-patient Surgeon at Chelsea Hospital.
FINCH, E., M.D., M.S. Lond., F.R.C.S. Eng., to a Lectureship in Surgery at the University of Sheffield.
ROBERTSON, J., M.B., M.S. Glasg., D.P.H., M.R.C.P. Edin., F.R.I.P.H. Lond., Medical Officer of Health, School Medical Officer, and Medical Superintendent of Infectious Hospital at Darwen.
WILLOCK, EDITH F., M.B., B.Ch. Dub., B.A.O., D.P.H., Resident Medical Officer, Manchester Babies' Hospital.

Medical Referees under the Workmen's Compensation Act:
MARTIN, H. O., L.R.C.P. & S. Edin. (Roxburgh County);
ROBERTS, H. H., M.D. Edin. (Haddington County);
RENWICK, T. D., L.R.C.P. & S. Edin. (Dunfermline District and Kinross County); DONALD, H. C., M.B. Glasg., F.R.C.S. Edin. (Paisley District); BROADFOOT, J., M.D. Glasg. (Ross and Cromarty (Mainland) and Dingwall and Tain Districts); SUTHERLAND, G., M.B., Ch.B. Edin. (Island of Lewis); McFARLAN, P. F., M.B. Edin., F.R.C.S. Edin. (Stirling District).

Vacancies.

For further information refer to the advertisement columns.

1berdeen Royal Mental Hospital.—Senior Asst. P. £400 to £500.
sethlem Royal Hospital, Lambeth-road, S.E.—Consulting Radiologist. £100 guineas.
irkenhead and Wirral Children's Hospital.—H.S. £100.
irkenhead Borough Hospital.—Hon. Radiologist.

Birmingham and Midland Ear and Throat Hospital.—Jun. H.S. £200.
Bradford Royal Eye and Ear Hospital.—Hon. Ophth. S.
Cambridge, Addenbrooke's Hospital.—H.P. £130.
Carmarthenshire Education Committee.—Chief Sch. M.O. £700.
Chelsea Hospital for Women, Arthur-street, S.W.—Registrar. £50. Also H.S. £120.
Chester, Burnthwood Sanatorium.—Res. Med. Supt. £900.
Dreadnought Hospital, Greenwich, S.E.—H.S. £150.
Dundee Royal Infirmary.—Asst. Radiologist.
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P., Two H.S.'s, and Obstet. Asst. Each £50.
Folkestone, Royal Victoria Hospital.—Bacteriologist and Path. £50.
Gloucestershire Royal Infirmary.—Asst. S.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. £50
Hospital for Women, Soho-square, W.—Res. M.O. £100.
King's College Hospital Medical School, Denmark-hill, S.E.—Director of Dental Studies. £400.
Lancaster County Mental Hospital.—Asst. M.O. £590.
Leeds Education Committee.—Asst. Sch. M.O. £500.
Leeds Township Infirmary, Beckett-street.—Asst. M.O. £275.
Leeds University.—Lecturer in Bacteriology. £500.
Leeds, West Riding Asylum, Menston.—Fourth Asst. M.O. £400.
Liverpool, Brownlow Hill Institution.—Asst. Res. M.O. £300.
London County Mental Hospital Service.—Seventh Asst. M.O. £440.
London Lock Hospital, 283, Harrow-road, W.—H.S. £200.
Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—Asst. S.
Midway Mission Hospital, Austin-street, Bethnal Green, E.—Sen. Res. M.O. £140. Also Jun. Res. M.O. £100.
Mount Vernon Hospital for Tuberculosis.—Surg.-Laryngologist.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Asst. Radiologist. £400.
Northamptonshire County Council Education Committee.—Asst. School M.O. £500.
North Ronaldshay, Orkney.—Med. Pract. £100.
Queen Mary's Hospital for the East End, E.—Cas. O. £150.
Rochester, St. Bartholomew's Hospital.—H.P. £200.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. and H.P. Each £100.
Royal Westminster Hospital, King William-street, Strand, W.C.—Asst. S.
St. Lucia, Victoria Hospital.—Res. S. £500.
St. Marylebone General Dispensary, 30, Marylebone-lane, W.—Hon. P. Also Hon. S. to Ear, Nose, and Throat Dept.
St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. P. and Hon. Asst. P.
Saint Pancras Dispensary, 39, Oakley-square, N.W.—Res. M.O. £225.
Salford Union Infirmary, Hope, Pendleton, near Manchester.—Second Asst. Res. M.O. £250.
Salop County Council.—Asst. M.O. £550.
Sheffield, Jessop Hospital for Women.—Asst. H.S. £100.
Sheffield Royal Infirmary.—H.S. for Ear, Nose, and Throat. £150.
South Shields County Borough Sanatorium.—Asst. Tub. O. £500.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.
Whitehaven and West Cumberland Infirmary.—Res. H.S. £225.
Winchester, Royal Hampshire County Hospital.—H.S. £150.
Windsor, King Edward VII. Hospital.—Sen. H.S. £200. Also Jun. H.S. £150.
Wolverhampton and Staffordshire General Hospital.—Res. Cas. S. £250.
Worcester General Infirmary.—Res. M.O. £200.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Brentford and Ealing (Middlesex) and Sidmouth (Devon).

Births, Marriages, and Deaths.

BIRTHS.

DAVIES.—On May 8th, at Charlemont, Oakcroft-road, Blackheath, the wife of Dr. Arthur Davies, of a daughter.
DOUTHWAITE.—On May 10th, at Wigmore-street, W., the wife of Dr. A. H. Douthwaite, of a son.
MAYER.—On May 13th, at Thames Ditton, the wife of J. W. Mayer, M.C., L.D.S. Eng., of a daughter.
O'BRIEN.—On May 9th, at 16, Rothesay-terrace, Edinburgh, the wife of A. J. R. O'Brien, M.C., West African Medical Service, of a son.
SACKS.—On April 15th, at 13, New-road, E., the wife of Dr. Samuel Sacks (Muriel Elsie Landau, M.D. Lond., F.R.C.S. Eng.), of a son.

DEATHS.

COLLIER.—On May 10th, at Bonnie Brae, Hyde-road, Paignton, South Devon, Hopetoun Currie Collier, Brigade-Surgeon Lieut.-Colonel, aged 82 years.
KNIGHT.—On May 7th, at West Norfolk and King's Lynn Hospital, following an operation, Frederick Charles Rienzi Malins Knight, M.R.C.S., L.R.C.P., of Watlington, Norfolk (late of Claremont-square, London, N.).
STYLE.—On May 14th, at Queen-street, Mayfair, Mark Style, M.R.C.S., L.R.C.P., J.P., late of White House, Moreton-in-Marsh, aged 61.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Friday, May 25th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.)

Annual General Meeting:
Election of Officers and Council for 1923-24.
Discussion: on Birth Injuries.
Cases will be shown.

NEUROLOGY; ORTHOPÆDICS.

Members of these Sections are cordially invited to attend, and it is hoped they will coöperate by showing cases and joining in the Discussion.

EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.

Annual General Meeting:
Election of Officers and Council for 1923-24.

Paper:

Prof. E. L. Collis: An Inquiry into the Mortality of Coal and Metalliferous Miners in England and Wales.

UNIVERSITY OF LONDON ADVANCED LECTURE IN PSYCHIATRY, in the Barnes Hall, Royal Society of Medicine, Wimpole-street.

THURSDAY, May 24th.—5.15 P.M., Prof. E. D. Wiersma (Groningen): The Psychology of Epilepsy.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.

FRIDAY, May 25th.—8.30 P.M., General Meeting. Sir Thomas Horder: Introductory address on Metastatic Gonorrhœa. Sir Wm. Willcox: Gonococcal Arthritis. To be followed by a discussion.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, May 21st.—12 noon, Mr. Simmonds: Applied Anatomy. 2.30 P.M., Dr. Saunders: Medical Wards. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear. 2 P.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.

FRIDAY.—11 A.M., Mr. McDougal: Electrical Department. 2 P.M., Dr. Burrell: Medical Out-patients. 3 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.

FRIDAY, May 25th.—4.30 P.M., Dr. H. W. Barber: Demonstration of Dermatological Cases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Demonstration of Clinical Cases at 3.30 P.M.

MONDAY, May 21st.—Mr. J. Bright Banister: Gynaecological.

TUESDAY.—Mr. J. Metcalfe: Radiological.

WEDNESDAY.—Mr. C. H. Hayton: Throat and Nose.

THURSDAY.—Dr. Yealland: Medical.

FRIDAY.—Mr. E. Gillespie: Surgical.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, Marylebone, W.

THURSDAY, May 24th.—5.30 P.M., Dr. J. Strickland Goodall: The Heart in Relation to Thyrotoxicosis.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.

THURSDAY, May 24th.—4.30 P.M., Dr. Bernard Hart: The Development of Psycho-pathology as a Branch of Medicine.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.C.

TUESDAY, May 22nd.—5 P.M., Prof. A. L. McIlroy: Heart and Lung Complication in Pregnancy.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, May 24th.—4 P.M., Dr. Poynton: Prevention of Heart Disease in the Young.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

TUESDAY, May 22nd.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Syphilitic Disease of Nervous System: Dr. Adie.

THURSDAY, May 24th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Focal Disease in the Medulla: Dr. Gordon Holmes.

FRIDAY, May 25th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Vascular Disease in the Nervous System: Dr. Collier.

A COURSE OF 12 LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS and FRIDAYS if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the whole Course is £12 12s., including Anatomy and Physiology, but these Lectures may be taken separately for a fee of £4 4s. The fee for the Course without Anatomy and Physiology Lectures is £10 10s. Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

LONDON LOCK HOSPITAL, 91, Dean-street, W. 1.

TUESDAY, May 22nd.—2.30 P.M., Mr. J. E. R. McDonagh: Clinical Demonstration with Exhibition of Paintings.

THURSDAY.—2.30 P.M., Mr. W. Victor Corbett: Interpretations of the Wassermann Reaction. 4.30 P.M., Mr. Lawrence Abel: Some Complications of Gonorrhœa in the Male.

FRIDAY.—4 P.M., Mr. Johnston Abraham: Syphilis in Women.

At 283, Harrow-road, W. 9.

WEDNESDAY, May 23rd.—3 P.M., Mr. Ernest Lane: Treatment of Syphilis by Trepol, the Arsenical Compounds, and Intravenous Cyanide of Mercury.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

TUESDAY, May 22nd.—5.15 P.M., Dr. Millais Culpin: Symptomatology (2).

WEDNESDAY.—4.15 P.M., Dr. W. M. Feldman: Embryonic Physiology.

FRIDAY.—4.15 P.M., Mr. Russell Howard: (Lecture on Surgery) The Testicle. 5.15 P.M., Dr. Millais Culpin: Diagnosis.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

WEDNESDAY, May 23rd.—8.45 P.M., Dr. Helen Mackay: The Treatment of Nutritional Disorders of Infancy.

THURSDAY.—6 P.M., Dr. Eric Pritchard: The Physiology and Pathology of Nutritional Disorders.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, May 24th.—5 P.M., Mr. A. W. Bourne: Puerperal Pyrexia.

SALFORD ROYAL HOSPITAL.

THURSDAY, May 24th.—4.30 P.M., Mr. Ollerenshaw: Demonstration of Orthopaedic Cases in the Wards.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).

THURSDAY, May 24th.—3.30 P.M., Dr. J. R. Charles: Hysteria, Signs, Differential Diagnosis, Treatment.

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Notes, Comments, and Abstracts.

THE EVOLUTION OF THE MODERN TREATMENT OF SEPTIC PERITONITIS.¹

By H. W. CARSON, F.R.C.S. ENG.,

SENIOR SURGEON, PRINCE OF WALES'S GENERAL HOSPITAL.

It may seem curious that I should have chosen the history of peritonitis to honour a man who was not much interested in the study of the past and in whose day peritonitis was little understood. But John Hunter's views on peritonitis, like his views on so many things, were ahead of his time. He says: "That the inflammation of the peritoneum rises from the stimulus of imperfection is also evident, because if a man is wounded in the belly with a sword, which has also wounded one of the intestines, if the wound in the abdomen is closed and unites by first intention, the wound in the intestine will unite with some parts with which it comes in contact, either by extravasated blood or the adhesive inflammation, and no further trouble will ensue, because the stimulus of imperfection has not been given. But if a man is wounded in the belly and there is no wound of the viscera, yet if the wound is kept from healing by first intention, the whole peritoneum becomes inflamed immediately—not from the spreading of inflammation by the continuity of surface, but the consciousness of imperfection in the membrane itself by which the whole is brought into the same action."

And again he says: "The inflammation may be a true inflammation or the erysipelas. At first the apparent indication would be bleeding and that largely; but if it is of the erysipelas kind, we may be led by these symptoms beyond the quantity suitable to the constitution; yet I do not know what we can do better. I should be inclined to reduce the patient to the lowest pitch rather than allow suppuration to take place, for that would certainly kill. *How far in such cases it might appear desirable to make an opening into the abdomen and throw in warm water repeatedly to wash away the matter, I will not undertake at present to determine.*"

He also recognised puerperal fever as a true peritonitis, a conclusion that preceded the work of Bichat by some 30 years.

The "Iliac Passion."

There is little direct evidence to be obtained from pre-historic sources. The ancient Egyptians, as you know, deposited the internal organs of the dead in four canopic jars, but Prof. Elliot Smith and Prof. Wood Jones in their "Archæological Survey of Nubia" could only report one case of adhesions due to old peritonitis, and that not even in a jar, but in the pelvis of a woman buried in the cemetery No. 2 on Hesa. There is nothing in the Ebers papyrus (1500 B.C.) on acute abdominal disorders, but in the fragmentary tablets of the library of Assur-Bani-Pal, at Nineveh (600 B.C.), there are instructions for treating colic. It is certain that abdominal disorders were well known in Egypt, for Herodotus states that medicine was practised upon a plan of separation—thus "Some cure diseases of the eye, others of the head, others again of the teeth, others of the intestines." There is in the Wellcome Museum an excellent specimen of a clay votive offering found on the banks of the Tiber by Mr. Thomson, who very kindly demonstrated it to me. It looks exactly like the post-mortem appearances of the abdominal cavity of a patient dead of diffuse peritonitis and is life size. Mr. Thomson dates it about A.D. 200.

It can be well understood that in early mediæval times, when there were no post-mortems and symptoms were more important than signs, a good deal of mystery attached to any sudden, severe, painful, and fatal illness, such as is seen in peritonitis, obstruction, appendicitis, or perforation; and when the victim was a personage of importance all sorts of whispers of foul play would be current. William the Conqueror possibly died of peritonitis following a rupture of the intestine; Henry I. had a mysterious abdominal seizure, which is generally believed to be ptomaine poisoning; John died after an unwise meal of peaches. Stephen's death seems to have been due to what was then known as the "iliac passion." What exactly was comprehended under the name of "passio iliaca" is unknown; but it seems to approach nearly to the dreadful modernism—"the acute abdomen," and to include peritonitis, intestinal obstruction, and even strangulated hernia. It was also known as "ileus" and "miserere." John of Gaddesden in the Rosa Anglica, 1314, differentiates between the iliac passion, which is probably peritonitis,

the colic passion, which may be intestinal obstruction, and the renal passion, and speaks of the iliac passion as being accompanied by frequent vomiting, by hardness of the belly, and by extremely acute pain, as if a gimlet were boring through the intestine. Fomentations and enemata were the chief means of treatment. Praxagoras of Cos, 100 B.C., bravely treated the vomiting by giving emetics until fæculent vomiting occurred.

Little advance was made until the seventeenth century, when Thomas Willis (1621-75) described puerperal fever, and in an account of the colic passion disagreed with the theory advanced about that time, that it was to be counted among the distempers of the brain and nervous stock. He says: "The intestines enter into pains and torments, being irritated by wind, medicines, cholera and perhaps other humours contained within their cavities; but if it were so, those things which loosen the belly should give certain ease, the contrary of which often happens—to wit by some more violent or often purging, when the disease has grown worse." It is interesting to find this great truth, of which we have only recently been convinced, being enunciated 250 years ago.

Early in the eighteenth century Haguenaal gave a very interesting account of peristalsis and antiperistalsis in the iliac passion. In 1759, Heister reported the first case of appendix abscess, which he discovered in 1711, when doing a post-mortem on a malefactor, in the public theatre of Altdorf.

This was followed in 1759 by the historic case of Mestivier, who reported a case of appendicitis occurring in a man of 45, who came to the Hôpital St. André de Bordeaux with a large abscess in the right iliac fossa. One pint of offensive pus was removed by incision and on post-mortem a pin was found in the appendix. A few other cases were reported in France about this time, and in 1812 Parkinson, a pupil of John Hunter, reported the first case in England. The last mention of the iliac passion as such was made by Sydenham in 1788. He describes two forms—the obstructive and the irritative—and says that the true iliac passion is the second. He says the method of curing it had hitherto remained a secret, "notwithstanding the pretension of such as had recourse to quicksilver and leaden bullets, which do little service and are frequently very dangerous." He recommends that the salts of wormwood with a spoonful of lemon-juice be taken morning and night and that in the intervals some spoonfuls of mint water by itself should be given twice every hour. "At the same time, I order a live puppy to be applied to the belly until the purgative is given two or three days afterwards." This period is closed by Erasmus Darwin in his Zoonomia, 1796, under the heading of "inverientia." He says: "If the vomiting continues after the pain ceases, and especially if the bowels become tumid with air, which sounds on being struck with the finger, these patients seldom recover."

Puerperal Fever.

As regards the generally accepted treatment for peritonitis at the beginning of the nineteenth century, Benjamin Travers and Thomas Sutton, writing in 1812 and 1813 respectively, considered that the treatment consisted in absolute rest, purgatives—especially magnesium sulphate—abstinence from food, cold applied to the abdomen, blood-letting in acute cases, and opium only occasionally and very sparingly. Of puerperal fever, Dr. Sutton said: "I have never had the happiness to discover anything in the shape of a remedy for this cruel disorder excepting copious blood-letting."

A great deal of attention now began to be given to puerperal fever. John Hunter tells the story of "a man whom I tapped at the hospital and died on the third day. I said he died of puerperal fever. This was smiled at in the hospital and some were pleasant in remarking on the curiosity of a man being delivered; but a few months afterwards, another having the same fate, I convinced them by dissection that he had died of suppuration of the peritoneum, which we must admit to happen in puerperal fever." The greatest advance was made by John Hunter's friend and fellow student, Charles White of Manchester, 1728-1813, who wrote his first treatise in 1773 on "The Management of Pregnant and Lying-in Women," nearly 90 years before Semmelweis, to whom so much credit has been given. White held that puerperal fever was a putrid fever, dependent on retained lochia and dirty surroundings. He advised the sitting up of the patient after delivery, getting up on the second or third day, and antiseptic injections into the uterus if the lochia became acrid or putrid. He says that as the puerperal fever does not appear till after delivery, so neither does absorption of matter from an abscess till it be opened and the air have access. "We may, I think, conclude that the absorption of matter is the immediate cause of the puerperal fever, as well as that consequent upon abscesses and ulcers." White was a great believer in fresh air and gave minute instructions as to the ventilation

¹ Abstract of the annual oration of the Hunterian Society, delivered on March 19th, 1923.

of the wards. He washed his hands in chloride of lime solution, fumed the apartment with brimstone after a patient had had the disease, cleaned the floor and woodwork with vinegar, and had all the linen and curtains washed. His principles were adopted by Robert Collins, Master of the Rotunda Hospital, Dublin, 1826-33, who, finding puerperal fever rampant, adopted in 1829 a very drastic method of cleansing the wards, filling them with chlorine gas, and covering floors and woodwork with chloride of lime cream. He stoved the bed-linen at 120-130° F., and during four years did not lose a single case from puerperal fever.

Peritonitis as an Entity.

In 1802 Bichat, a young surgeon in the French Revolution, did his great work on peritonitis, and he was soon followed by Laennec. They both insisted that peritonitis was an entity, in contradistinction to the generally accepted view that all abdominal inflammations were infections of various organs, such as gastritis and enteritis, and this was further developed by Bichat's pupil, Gasc.

Attention now began to be paid to the possibility of operating for appendicitis, but progress was stopped by the result of an unfortunate case. In 1827 a French medical man, Melier by name, diagnosed a case as an abscess due to a recurrent appendicitis. He called in Dupuytren to operate. Dupuytren, although not enthusiastic, agreed to do so, and opened the abscess; a sinus resulted, and some months afterwards the patient died from the bursting of a residual pelvic abscess into the peritoneal cavity. This confirmed Dupuytren in his opinion that operation should not be done on those cases; he was the leading surgeon in France, his opinion was always quoted, and the progress of operation for appendicitis was put back—in France at any rate, and also, I think, in England—about 30 years. Dupuytren discusses on several occasions the reasons why swellings occur in the right iliac fossa rather than in the left, and concludes "that the cæcum offers at its point of union with the small intestine a narrowing, so marked, that at this place, the ileo-cæcal valve, one often sees collect many foreign bodies, which could themselves cause this abscess. The left side is quite different and does not show any narrowing. On the right side the feculent material had to circulate against the law of gravity." This view was generally adopted, so that typhlitis and typhlo-enteritis were more often spoken of than appendicitis. Husson and Dance, colleagues of Dupuytren at the Hôtel Dieu in Paris, and Ferrall, in Edinburgh, held this view very strongly; but Dr. John Burne, of the Westminster Hospital, in a paper read before the Medico-Chirurgical Society in 1836, reports several cases of appendicitis proved at post mortem, and suggests that an incision should be made "when a lump, emphysematous in character, approaches the surface." He draws a very definite distinction between typhlo-enteritis and perforative ulceration of the appendix based on their symptomatology, typhlo-enteritis being cured by aperients, while the symptoms persist if the appendix is at fault. He considers that there are four causes for inflammatory tumours in the right iliac fossa, placing them in the following order of frequency: (1) typhlo-enteritis; (2) perforative ulceration of the cæcum from within, with abscess behind the peritoneum (comparatively rare); (3) perforative ulceration of the cæcum from without, with abscess behind the peritoneum (comparatively rare); (4) inflammation of the appendix (very rare—only one case had come under his notice).

Dr. James Copland, of the Orkney Islands, in his "Dictionary of Practical Medicine" (1844), considered appendicitis more dangerous than typhlitis and is strongly opposed to aperients, "as they cause ileus to follow." Grabowski, of Poland, in 1836, called attention to the occurrence of a quiescent period in acute peritonitis, but he does not recommend operation. However, ten years later Jobert and Guérin recommended opening the abdomen and washing out the peritoneal cavity with water at blood heat until it returns clear. By this time (1846) anaesthesia was introduced and this gave a tremendous impetus to surgery. Not only were the ordinary operations now done easily and methodically, but it became possible to do many operations, and among them some abdominal operations, which were formerly not even contemplated. But antisepsis and asepsis were not yet—or no longer—practised. Surgeons operated in dirty coats with dirty hands; the instruments were not clean; sponges were dreadful; the sanitary conditions of the hospitals were beyond description, and the mortality was frightful. In the midst of this saturnalia, Syme, of Edinburgh, made personal cleanliness a cult. Without knowledge of bacteriology, for Pasteur had yet to reveal his secret; without any knowledge of antiseptics, for his brilliant son-in-law, Lister, was yet to do his work (Lister's first article on antiseptics was published in THE LANCET in 1867²), he achieved by simple cleanliness results which were for that period amazing. Unfortunately Syme took up a strong stand against abdominal surgery.

² THE LANCET, 1867, i., 326.

To illustrate the casual manner of the surgeon of that time, a story is told of Sir Astley Cooper, who removed a wen from the scalp of King George IV. On going to see his illustrious patient next morning, very nervous as to the result of the operation, he was rather coldly received. When he got home, he inquired of his nephew why this should be. The nephew pointed to the fact that his cravat, shirt, and hands were bespattered with blood. "God bless me, but I was not aware of it," said Cooper, "and the King, Sir, is so very particular!"

A very illuminating medical view on intestinal obstruction is seen in the lecture by Dr. Brinton, physician to the Royal Free Hospital, delivered in 1859. He says: "Our wonder at the happy audacity of the operator is unaccompanied by any wish or hope of imitating his procedure. That the operation may succeed, there is scarcely any need of these cases to inform us; that it is justifiable is a conclusion which, even supposing them to record failures and successes with rigid impartiality, they would be utterly incapable of establishing. The question 'Is gastrotomy justifiable in intestinal obstruction?' must be answered with a decided negative. In intussusception an operation ought not to be mooted." He goes on to make the amazing statement that 30-40 per cent. of all intussusceptions recover by casting off the intussuscepted part. He says that operation should be confined to obstruction by bands and twists and should always be preceded by medical treatment, which may cure.

Lister.

In February, 1860, Lister obtained an appointment at Glasgow and had full charge of wards in the infirmary in 1861. He had done much work by that time on inflammation, and introduced into his practice in Glasgow the most scrupulous cleanliness, really an elaboration of Syme's methods; but the secret eluded him, until he read in the early part of 1865 Pasteur's papers on putrefaction, which had appeared in the "Comptes Rendus Hebdomadaires" during 1863. In March, 1865, he made his first antiseptic treatment with crude carbolic acid in a case of compound fracture of the leg. The patient, a poor surgical risk, died. His second case, a healthy boy of 11, whose leg was crushed by a cart-wheel, was successful. Soon after, in 1869, Lister left Glasgow to succeed Syme in Edinburgh and was able to say that he had had "three years of immunity from the ordinary evils of surgical hospitals" in spite of great sanitary disadvantages.

But now a determined effort was made to improve hospital treatment, and Sir James Young Simpson, in 1869, published statistics of the results of amputation. Of 2089 results of hospital amputation 40 per cent. died; of 2098 country amputations, 11 per cent. died. This paper made a great stir, and a meeting was held at Leeds to consider these statistics, with the result that the hospitals were vindicated.

Abdominal Operation in the Second Half of the Nineteenth Century.

Now, how do matters stand with regard to peritonitis? We have seen the period initiated by Bichat, when peritonitis was recognised as an entity. In a second period, 1825-43, the causes of peritonitis were studied, particularly tuberculous peritonitis and puerperal fever. In the third period, 1850-80, partial peritonitis was discussed; as, for instance, pelvic peritonitis by Bernutz and subphrenic abscess by Foix. The fourth period was concerned with bacteriology. It is interesting to see what the hospitals were doing in abdominal work during this period. I had before me the Guy's Hospital Reports for the seven years 1854-60, edited by Dr. Fagge. During that time 54 abdominal operations were done and 33 died; 44 of these operations were ovariectomies, of which 23 died. Twenty years later, at St. Bartholomew's Hospital in the six years 1874-79, abdominal operations were confined to colostomies and ovariectomies. Of the 11 colostomies 9 died; of the 26 ovariectomies 11 died. At this time a separate record was made of all cases of pyæmia admitted to or arising during treatment at the hospital.

We now read for the first time accounts of peritonitis occurring after an abdominal operation. In 1867 Koeberlé, the Alsatian surgeon, who introduced hysterectomy, advised that if a fluid extravasation followed an inflammatory process in the peritoneum, it is necessary to open the peritoneal cavity without delay. He records a successful case after ovariectomy and he thought the fluid harmful because of the neighbouring fecal matter in the intestine. Netter advanced his "coryza" theory, saying that the first fluid secreted in peritonitis was entirely irritant, and compared it to the fluid in coryza, which causes erosions of the nostrils and lips. He advised irrigation and made the ingenious suggestion that if the exudation is abundant, it is more dilute and less irritating, and the prognosis therefore better. Both Burdon-Sanderson, in 1876, and Mosiman, in

1881, produced peritonitis experimentally in animals by injections of various substances. Then followed a host of writers on the bacteriology of peritonitis. Pasteur discovered streptococci in puerperal fever in 1878-79. Metchnikoff, in 1884, described phagocytosis; Leyden, in 1884, and Winkel, in 1886, proved that the micro-organism in puerperal fever and erysipelas was the same. In 1885 Cornil and Babès described an organism found in perforative peritonitis, causing gas and derived from the intestine. This was named by Escherich in 1886 the *Bacillus coli communis*. Tavel and Lanz, in their much quoted account of the bacteriology of peritonitis (1893), described many different varieties. They dealt chiefly with appendicitis, and though they realised that the *Bacillus coli communis* was often present, they took the view that an anaerobic organism played the most important part.

Operative treatment, however, did not advance very rapidly and we find Mickulicz, Billroth's assistant, in 1886, saying in speaking of laparotomy: "It has not yet the favour of the medical public accustomed to employ only medical means; but it has been followed by results so marvellous in the most desperate cases, that one must consider it as the treatment of the future in peritonitis." In 1886 Lawson Tait, lecturing on the results of 139 consecutive ovariectomies without a death, says: "This success has absolutely destroyed our fear of the peritoneum and has justified our opening that sacred sac very much as we open our pockets." He introduced his technique in 1875, filling the abdomen with blood-warm water and washing all organs, repeating till the water comes off clear. "The water has not been boiled and contains no drug or chemical substance. The water is plain, unfiltered tap water, warmed by the addition of enough from the boiler. All opiates are forbidden in my practice, unless they are required to ease a dying patient out of the world."

"I have never said," remarked Lawson Tait in 1892, "that the purgative treatment will cure peritonitis; for peritonitis, once it is completely established, is practically an incurable disease and almost always uniformly fatal—but when it is completely established I do not know." Lawson Tait did 4000 abdominal sections and undoubtedly proved that the abdomen could be opened safely. He followed a system of crude asepsis and would have nothing to do with Lister and his methods.

In 1888 Mr. J. D. Malcolm described for the first time the condition now known as pseudo-ileus. Speaking before the Pathological Society on "Sequelæ of Laparotomy," he says: "In all cases the nervous plexuses of the intestine are more or less affected, their activity being first increased and afterwards paralysed in proportion to the severity and duration of the stimulus. The paralysed condition usually passes off in a few hours, but there is evidence that the bowel is distinctly wanting in power for from four to six days after operation." This was a great discovery and paved the way for further investigation and treatment of the condition, which still causes anxiety and the treatment of which is still a matter for debate.

The next important pronouncement came from Sir Frederick Treves in 1894, in his Lettsomian lectures on peritonitis. He mentioned that the chief organism was *B. coli communis*, while *Streptococcus pyogenes* was the common cause of post-operative peritonitis. His treatment consisted at that time of rest in the recumbent position, very little fluid by mouth, and warm water by rectum rather than nutrient enemata. If peritonitis is established, aperients are of no value; but he differentiates between this condition and perityphlitis, in which aperients are very valuable, very much like Dr. Burne in 1836. He was also in favour of blood-letting, which, he says, may with advantage be more extensively employed. His operative measures consisted of opening localised abscesses, and drainage without irrigation; in generalised peritonitis irrigation should be employed, using normal saline solution, if dry sponging is not successful in cleansing the cavity. In perforation cases he did not advise a long search for the cause, and considered that if the operator can rid the serous cavity of the effects of the perforation he may very often leave the breach itself to be dealt with by natural means. In these cases he dusted the serous membrane liberally with iodoform, except in children, and did not drain except by strips of gauze passed among the coils of the intestine. He did not drain the pelvis, but passed a rubber tube "into the midst of the area which is most disturbed." As for the use of morphia, he says: "Morphia should never become a feature in the routine cure of peritonitis. It masks the symptoms, hinders the natural process of cure, and hampers treatment." I think this view fairly represents the treatment of peritonitis 30 years ago.

The Twentieth Century.

Perhaps the most important work on the bacteriology of peritonitis was published in 1905 by Dudgeon and Sargent. After going very thoroughly into the types of bacteria

commonly found, they discuss very briefly points in technique and treatment, such as flushing the abdomen and drainage, and particularly do they advise against the use of morphia, which they say "superadded to the toxic paresis of the bowel may just turn the balance against recovery." They held that the post-operative pyrexia in ruptured tubal pregnancy was due to *Staphylococcus albus* and not to any hypothetical toxic substance produced by coagulation of blood; that the colon bacillus is the most important, the most common, and not infrequently the most virulent of the organisms which are known to cause peritonitis. At the same time they proved that the *Staphylococcus albus* had a protective function in causing phagocytosis.

In 1895 Moscatello, of Turin, had made the important discovery that absorption from the peritoneal cavity took place especially through the diaphragmatic peritoneum and that there was a lymph flow towards the diaphragm independent of gravity. This was the foundation for the great work done by J. B. Murphy in the treatment of peritonitis. It is not perhaps too much to say that his announcement at the British Medical Association meeting in Toronto in 1906 revolutionised the whole treatment of peritonitis. He recommended the sitting-up position, the administration of saline by the continuous drip method into the rectum, combined with drainage of the peritoneal cavity and the administration of aperients. I had the good fortune to hear this lecture; on returning to London I at once put his technique into operation, with the result that my death-rate in diffuse peritonitis fell 20 per cent. forthwith. Thousands of lives must have been saved by this device alone and general peritonitis lost half its terrors.

I will not weary you by referring to the many investigations which have taken place since that time. It is perhaps enough to draw your attention to the work on the causes of death in intestinal obstruction, to the bacteriological examination of the exudate as a means of prognosis, and to the rival method to Murphy's method of treating peritonitis, which one might call the "passive" as distinguished from the "active" method. About 12 months ago I addressed an inquiry to all the principal hospitals in Great Britain, asking for an account of the method adopted in the treatment of peritonitis. It was clear from the replies I received that on such questions as active or passive treatment opinion is widely divided. But all are agreed in condemning irrigation, and there is an increasing tide of opinion in favour of immediate closure of the peritoneal cavity instead of drainage.

We are still almost too close to the great advances of the last few years to estimate their value. I was myself house surgeon to Hooper May, one of Syme's dressers, and when I first entered the wards of St. Bartholomew's Hospital little abdominal surgery was done. In 1890 only 27 abdominal sections were performed, 9 of which were colostomies, and of the 27, 18 died. In 1891 51 laparotomies were done, of which 25 were colostomies, and of these 51, 19 died. I believe the first gastro-enterostomy was done there in that year, and also a cholecystotomy—both without success. We irreverent students used to speak of emergency laparotomies as the coup de grâce. I have performed hysterectomy with the serre-neud and have washed out many an abdomen with antiseptic lotions. But these are vain regrets!

There is still much to be done, for though we now feel confident that peritonitis will not follow a clean laparotomy, our mortality is still too high in septic peritonitis, but we are ever hoping that with increased knowledge will come the demand for earlier treatment, in which alone safety lies.

COLOUR AND SEXUALITY.

THE connexion, says Scheuer,¹ between coloration and sexual selection was established by the Darwinian school, and the same holds good even as regards man himself. Sudermann has remarked that from the bird of paradise and the peacock, up to the Hussar lieutenant, we see the eternal masculine arrayed in the brightest colours. The attraction of military and other uniforms for women is universal, and male inverters as a class resemble them in this respect. There is a tendency for military uniform to be the brighter, the higher the rank of the wearer. This is so even in the inconspicuous garb of the modern service uniform, since red tabs distinguish a staff officer. Technically speaking, women have a certain "uniform fetishism"; and just as fetishism is closely bound up with anti-fetichism, so cases have been known of the brides of soldiers and sailors taking an aversion to their husbands when these came home from active service and appeared in civilian clothes. Feminine fondness of the gaudy colours of the uniform is really a primitive trait, for in primitive peoples it is the male, not as with us the female, that is the more adorned. Savage men, says Westermarck, paint and tattoo themselves largely as a sexual attraction, beginning at the

¹ O. F. Scheuer: Zeitschrift für Sexualwissenschaft, April, 1923.

age of puberty, and treating especially those parts of the body which are exposed to view. Waitz records the answer of some uncivilised men to a question why they tattooed themselves—"For the same reason that you dress yourself, to attract the women." Civilisation has here reversed the rôles of the sexes, because with civilisation marriage becomes difficult for women. The author thinks Sudermann correct in his contention that, face to face with the risk of dying an old maid, civilised woman adopts the sexual lure of adornment, especially the adornment of colour. This phenomenon is seen most plainly in the prostitute, that product of civilisation, with her rouge and dye and powder. In warm climates artificial colouring may be applied to other parts of the body than the head and face; the Creole women of Caracas, for instance, rouge their bosoms, whilst in the East the nails of both fingers and toes are stained red with henna. It is said that some modern civilised women have had sound teeth filled with gold, merely in order to increase their attractiveness. Another instance of the association of colour with sexuality is the admiration of white races for whiteness of female complexion. Heine's poems are full of allusions to "lily-white fingers," or a small white hand, or snow-white shoulders. This is probably because the female in fair races is even less pigmented than the male. However, there is a certain attraction by contrast too. The blonde Schopenhauer, according to his own account, attracted brunettes. For this reason women easily fall in love with foreigners, even those of lower race, or those who are their conventional enemies—e.g., war prisoners or troops of occupation.

COLONIAL HEALTH REPORTS.

St. Lucia.

According to the census taken in April, 1921, the population of St. Lucia consisted of 51,505 persons—23,506 males and 27,999 females. These figures, compared with those of the census of 1911, show an increase of nearly 6 per cent. for the decennial period. There were 93 Europeans, of whom 52 were born in the United Kingdom. The birth-rate and the death-rate in 1921 were respectively 37.2 and 21.8 per 1000 of the total population. The principal hospital of the colony—the Victoria—is located within half a mile of Castries; the staff consists of a resident surgeon in charge, with a European nurse matron, assisted by a good class of native nurses. The number of patients admitted during 1921 was 1575, of whom 1006 were discharged cured and 133 relieved, while 111 died; 327 surgical operations were performed. Owing to the low salaries provided, difficulty has been experienced in obtaining the services of qualified men to fill vacancies on the medical staff of the colony. It is recognised that when the colony's finances will permit the emoluments of the medical officers must be increased. The International Health Commission continued their operations during the year over a considerable area. If effective sanitation can be maintained this philanthropic campaign should prove a lasting benefit to the health of the labouring classes. The climate of St. Lucia is healthy and compares favourably with other West Indian colonies. Not for many years has there been any outbreak of small-pox or yellow fever, or other quarantinable disease or serious epidemic. The temperature ranges from 70° F. in the cool season to 90° in the summer. The town of Castries, lying on low land, with the majority of the houses roofed with corrugated iron, is sometimes hot during the day, but is cool at night. On the hillsides around, where many of the best residences are built, it is never unbearably warm, while on Morne Fortuné, where the garrison was formerly located, the temperature in the winter months falls as low as 60°, and the climate at all times during the year is extremely mild and pleasant for Europeans. The rainfall in 1921 was 90.06 inches. Much has been written about the presence of the dreaded fer-de-lance snake in St. Lucia. In former years the colony was infested with this dreaded reptile. In 1870, Sir G. Des Vœux, the then administrator, offered a reward of 6*d.* a head, which resulted in the destruction in one year of 52,000, at a cost to the colony of £1300. As the result of the introduction of the mongoose in 1890, and with the advance of cultivation and the continuation of rewards, the remnants of this pest have been driven into the interior.

Ashanti.

There was no serious epidemic in Ashanti during 1921, and the health of the native population seems to have been normal. At Coomassie Hospital, which is the finest native hospital on the Gold Coast, there were 1125 admissions and 83 deaths. The prevalent diseases were ulcers, malaria, and venereal, and there was also a considerable number of pulmonary and bronchial affections. For Europeans the year was a bad one. There were 172 admissions to the hospital as against 149 in 1920, and 186 officials on the sick list, as compared with 116 in the previous year. There were six cases of blackwater fever, with two deaths, as against three cases with one death in 1920. The European population of Coomassie is about 225 out of a total of 20,000. The

census of Ashanti, taken in April, recorded a population of 407,000, an increase of 119,230, as compared with ten years ago. It is not possible to speak of the accuracy of the census with any great confidence, and the increase in the population is not necessarily a natural one. It may be due to a more extensive acquaintance with the country and to less suspicion on the part of the inhabitants.

A BOOK FOR PROSPECTIVE MOTHERS.

THE fact that the difficulties and dangers associated with pregnancy and childbirth are largely preventable is slowly becoming better known among the population as a whole. Even yet, however, there are only too many women who neglect to take the necessary care to safeguard themselves from harm during their labours by placing themselves under medical care during the period of their pregnancy. Until this becomes universal childbirth will still take its toll of life and accidents will still happen which a little care and forethought could readily have foreseen and prevented. It is difficult to persuade the young woman that there is a definite danger in childbirth and often even more difficult to make her husband realise that parturition is not always in modern times the simple physiological act it should be. A little book¹ has reached us in which all the necessary facts are set forth in clear and simple language and in which all that is required to be known, not only by the mother but also by the maternity nurse, is included. The failure to spread knowledge among expectant mothers, more especially among the poorer classes and in country districts, showing that there are certain dangers which may be readily recognised and avoided, is accountable for some at least of the heavy death-rate which even at the present day accompanies the act of parturition.

A little volume of this type should be useful to those who are engaged in health visiting as well as to women expecting a child. Miss Van Blarcom is to be congratulated on her book, which should find a large number of appreciative readers.

A DIRECTORY OF TUBERCULOSIS INSTITUTIONS.

A LIST, dated April, 1923, has been issued by the Ministry of Health (to supersede the list of May, 1921) containing all names of sanatoriums and other residential institutions for the treatment of persons suffering from tuberculosis and resident in England and Wales, with the names of administrative counties and county boroughs in which the institutions are situate, and the date on which the approval expires in each case. Distinguishing marks are placed against names of institutions where treatment may include a course of training, where Government training sections have been provided for ex-Service men, and where admission is restricted as regards class of diseases and sex of patients.

WORK OF THE RED CROSS IN CANADA.

THERE are many districts in Canada in which medical and nursing services are totally lacking, and a statement occurring in the "Handbook of Child Welfare Work in Canada," edited by Dr. Helen MacMurchy (Dept. of Health, Ottawa, 1923), to the effect that settlers in outlying districts often suffer untold hardships for lack of skilled attention, is one that can be readily believed. "Imagine," she says, "the hardship of acute pneumonia, or appendicitis, or brain fever, or one of the accidents which are liable to accompany the arrival of the baby, or a fractured skull, arm, or leg, a gunshot wound, or an artery bleeding from an axe wound, and no doctor or nurse within 20 or even 50 miles!" The Red Cross has come effectually to the rescue, and there are now 18 Red Cross hospitals and nursing stations in the three Prairie Provinces. The hospitals have from four to twelve beds each, but the nursing stations have only an emergency ward room which is not used except in extremity, the nurse's work consisting in visiting any injured or sick people in her territory known to her or to whom she may be summoned. In Manitoba the Red Cross also supplies a full-time medical practitioner, who spends all his time in regular visits to the various stations, much of his work being of a preventive character.

Red Cross nurseries have been established at the ports of St. John, Halifax, and Quebec to welcome immigrant women and children on their arrival in the country. Beds, cots, cooking and bathing facilities are provided, and suitable food is offered to both mothers and children. Any infant or child discovered by the nursing staff to be suffering from a condition requiring medical investigation or treatment is reported to the Red Cross headquarters, arrangements being made for all such children to be visited by a public health nurse. During the year more than 9500 children were cared for in the nurseries at these three ports. The Junior Red Cross also exerts a powerful influence in Canada, some 72,700 children having already enrolled as members.

¹ Getting Ready to be a Mother. By Carolyn Conant van Blarcom, R.N., Author of Obstetrical Nursing; The Midwife in England. London: Macmillan and Co. 1923. Pp. 237. 6*s.*

An Address

ON THE PRESENT POSITION OF DIABETES AND GLYCOSURIA, WITH OBSERVATIONS ON THE NEW INSULIN TREATMENT.

*Delivered at the Congress of Public Health, Scarborough,
on May 18th, 1923.*

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SINCE the classical observation of Thomas Willis in 1675 that the urine in diabetes contained sugar, no disease, perhaps, has been the object of so much combined clinical and laboratory investigation. Despite all this, we are to-day almost entirely ignorant of the nature of the fundamental defects in metabolism which give rise to diabetes, and it is fairly safe to prophesy that the mystery will remain unsolved until the secrets of general metabolism are fully unravelled. We are still very far from this enviable position, and our present knowledge of diabetes resembles a mechanical puzzle in which only a few of the pieces have been placed in their proper positions. Within recent years, however, our clinical conception of diabetes has been placed on a more secure foundation, for we are now able, in the great majority of cases, to say definitely whether or not a patient suffering from glycosuria is also suffering from diabetes. That this is an important fact will be recognised by all who have been called upon to decide whether or not a patient with glycosuria was really diabetic. A celebrated London physician, in discussing this question with me some time ago, made the following remark:—

"I have been watching patients with glycosuria for more than 25 years. Many of these patients whom I thought, when I first saw them many years ago, to be suffering from early diabetes, are still alive and as fit as, or more fit than I am. Others, whose condition I looked on as probably of little importance, are long since dead of diabetic coma."

This, I think, sums up the position admirably, and must appeal to all of us who have had any experience in dealing with this disease.

NEWER METHODS IN INVESTIGATING GLYCOSURIA.

When a patient who happens to be suffering from glycosuria consults his doctor it is not an unusual experience for the glycosuria to be discovered more or less accidentally in the course of routine examination. If such a patient feels somewhat run down and out of sorts, and physical examination results only in negative findings, there is a very great temptation immediately to ascribe the patient's condition to diabetes. In many such cases experience shows that the glycosuria is purely accidental, and has nothing whatever to do with diabetes. From the patient's point of view it is most important to ascertain the nature of the glycosuria, for patients are not infrequently submitted to severe antidiabetic treatment when the condition is only a simple renal glycosuria. An instance of this kind came under my notice a few weeks ago, when a patient was admitted to my wards suffering from what was said to be severe diabetes. His history and certain of his symptoms were exactly what might be expected in this disease, and his urine contained both sugar and acetone. Naturally, before admission, he had to run the gauntlet of several medical men, yet on investigation he proved to be quite free from diabetes, and was as capable of utilising carbohydrate as any average subject. The sugar in his urine was accidental, and the acetone was produced by his strict protein diet in the manner to be described later on. I quote this case simply to show that it is quite impossible in certain

patients to decide by clinical investigation whether they are diabetics or not. In such patients, examination of the urine gives little or no helpful information. Sugar is present, and that is all we can say. What the significance of the sugar is can only be ascertained by a blood-sugar examination. In the investigation of glycosuria we nowadays pay little attention to the urine, but devote our energies to the blood instead. By this means we obtain information which urine examination is incapable of furnishing. Indeed, it may be said with truth that examination of the urine is of comparatively little value in any doubtful case of glycosuria, and the fashion of giving long detailed analyses of various constituents, so prevalent on the continent, is devoid of value, at any rate as far as the patient is concerned. With regard to urinary examination, I have been very much struck by the fact that many medical men assume that a patient whose urine gives a slight reaction with Fehling's solution is more likely to be a diabetic subject if the urine passed is of high specific gravity. Exactly the reverse is true. It is common knowledge that the urine in bad cases of diabetes is usually of high specific gravity, but this is due entirely to the large amount of sugar in solution. In urines of high specific gravity giving but a slight sugar reaction, and therefore containing at most only a small amount of sugar, this reaction is more likely to be due to concentration than anything else. A urine showing a small amount of sugar, but of very low specific gravity, would be more suspicious. In every doubtful case of glycosuria it is essential that the patient's blood-sugar should be investigated, for when this is done, we can generally ascertain what the nature of the glycosuria is, and to what extent carbohydrate metabolism is interfered with.

Our knowledge of the changes which the blood-sugar undergoes both in normal and diabetic subjects has been obtained very largely from investigations pursued during the last few years. Much of this knowledge is therefore new, and some of it we do not yet fully understand. However, recent methods of blood-sugar investigation, by which the blood-sugar concentration can be ascertained when using only a few drops of blood, have contributed largely to a more complete understanding of the mechanism by which glycosuria is produced. It may be said at once that a knowledge of the changes which the blood-sugar undergoes as the result of food and other factors is so important that no medical man can ever have other than an empirical conception of glycosuria and the manner in which it is produced unless he is conversant with this recent knowledge. A few hours spent in mastering the somewhat elementary details connected with the subject will well repay him, for he will then understand clearly many points connected with glycosuria and diabetes which were formerly dark and obscure. For everyone who treats diabetic patients with the new remedy insulin it is imperative that these blood changes should be understood, and they will now be briefly described.

Blood-Sugar in the Normal Subject.

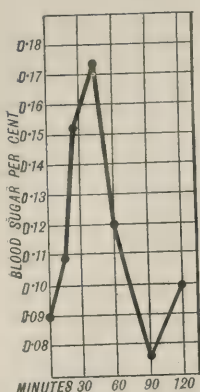
Since the blood-sugar variations in the normal individual must be appreciated before we can understand the changes found in the diabetic, it is necessary to deal first with the normal subject. In the normal healthy person the blood, when examined three or four hours after a meal or in the morning before breakfast, will be found to contain about 0.1 per cent. of sugar. This value varies to some slight extent in different individuals, but, speaking generally, it lies between 0.09 and 0.11 per cent. Under certain circumstances it may be a little higher, or even a little lower than this, but the round figure of 0.1 per cent. (100 mg. sugar per 100 c.cm. blood) is generally accepted as the normal for average individuals. Formerly there used to be an idea that blood-sugar concentration remained practically constant, and never varied to any appreciable extent, but we now know that this is an erroneous view, and that as the result of food and other factors the blood-sugar is constantly changing from time to time. These changes

are best observed when the blood-sugar is estimated at short intervals after a meal of starchy food or sugar.

Blood-Sugar Variations in the Normal Subject After Ingestion of Carbohydrate.

If we take a healthy adult and estimate his blood-sugar three or four hours after a meal it will, as already indicated, nearly always be in the region of 0.1 per cent. If we now give him, say, 50 g. of glucose by mouth, and examine

FIG. 1.



Blood-sugar curve obtained from normal individual.

hydrate diet. After an ordinary mixed meal, the blood-sugar rises very considerably within the first half to three-quarters of an hour; it then decreases, and within one and a half to two hours after taking a meal, it once again returns to the region of the normal value. A sugar curve obtained from a normal individual is shown in Fig. 1; here 50 g. of glucose were taken.

From the above short description it will be obvious that the amount of sugar found in the blood depends chiefly on the time the sample of blood is withdrawn with reference to the diet. It is very important to be quite clear on this point, for a blood-sugar of, say, 0.17 per cent. would be of no significance whatever if found shortly after a mixed meal had been taken, but would be of definite significance if found in a patient who had taken no food for several hours beforehand. Since all our ordinary diets contain a certain amount of carbohydrate, the blood-sugar concentration is constantly increasing and decreasing during each day, in correlation with our meals.

The Extent to which the Blood-Sugar can be Raised in the Normal Subject.

In the average normal individual it is practically impossible to raise the blood-sugar above 0.17 to 0.18 per cent. The exact amount varies somewhat with different individuals, and occasionally the value may lie a little higher than the figures just given, but, generally speaking, it will be found that the blood-sugar cannot be raised above a maximum of 0.2 per cent., however much starch or glucose be taken. Thus a dose of 50 g. of glucose given to a certain subject raised the blood-sugar to 0.17 per cent. after 30 minutes, while, on another occasion, in the same subject, a dose of 250 g. gave exactly the same blood-sugar value when examined at a similar interval after the dose; this was the maximum point to which the blood-sugar rose in both instances. The only difference was, that with the larger dose of glucose the high value was maintained for a slightly longer period. On both occasions the blood-sugar was 0.1 per cent. after two hours. From this it will be obvious that it is generally impossible to produce glycosuria in the normal subject by feeding with excess of sugar. Indeed, patients have taken nearly a pound of sugar

at once without any glycosuria being produced. There is therefore, strictly speaking, no such condition as the so-called "alimentary glycosuria," for if glycosuria succeeds an excessive ingestion of sugar or starch, it generally indicates that the patient's mechanism for dealing with sugar is defective. No doubt, excessive amounts of sugar may occasionally induce a slight glycosuria in a healthy subject, but such doses are difficult to take, and generally produce nausea and vomiting. We may, therefore, accept it as proved that excessive ingestion of carbohydrates does not per se produce glycosuria. When very large amounts of carbohydrate are taken over long periods glycosuria may result in some subjects, but this appears to be caused by a long-continued strain on the carbohydrate storage mechanism—a strain which ultimately injures the mechanism and results in a condition which is essentially a potential diabetes, and which frequently leads to a well-marked clinical diabetes.

The Mechanism which Prevents Glycosuria After Ingestion of Sugar.

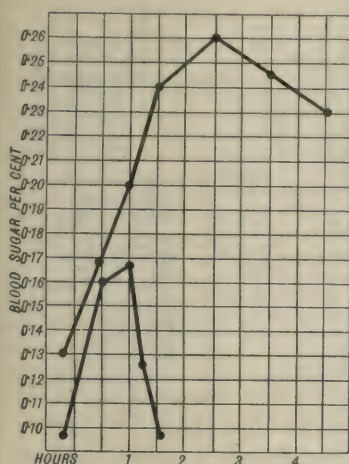
The fact that sugar taken by the mouth will not, as a rule, raise the blood-sugar beyond the limits mentioned, however much sugar is taken, suggests that there must be a definite mechanism which removes the sugar from the blood when it rises to this point. It might, of course, be argued that what happens is much simpler, and that the chief cause of the drop is lessened absorption from the intestine. That this is not so is quite certain, for it has been shown that absorption goes on steadily for a long time after the blood-sugar begins to fall; that, indeed, the blood-sugar may have returned to a normal or even subnormal value with absorption still going on rapidly all the time. The mechanism which prevents the blood-sugar rising to any appreciable extent in the normal subject probably resides in the liver. All the absorbed sugar has to pass through this organ before it gets into the general circulation, and it would appear as if the liver at first allowed a certain amount to pass through but that, whenever a concentration of about 0.18 per cent. is reached, then the liver begins to store sugar, and so removes it from the blood. It is most interesting to remember that this figure—approximately 0.18 per cent.—is just about the maximum concentration which can be present in the blood without any sugar being removed by the kidneys. Whenever the blood-sugar exceeds 0.18 per cent. the kidneys throw out the excess. There is thus a very definite reason why the blood-sugar should not be permitted to rise above a certain value in the blood for a high concentration of blood-sugar would simply result in a great loss of sugar by the kidney. This maximum blood-sugar value of about 0.18 per cent. is known as the renal threshold value for sugar, and represents the concentration below which no sugar is excreted into the urine. This renal threshold value, however, sometimes varies to some extent, even in perfectly healthy individuals, and when it is lower than normal it gives rise to the condition known as renal glycosuria, which will be fully described later.

Blood-Sugar Reactions in the Diabetic Subject.

When sugar is given to a diabetic patient the results obtained in the blood are very different from those in the normal individual. In the former the blood-sugar is generally higher than the normal 0.1 per cent. to begin with, but if it is reduced to this region by dieting, and then a dose of 50 g. of glucose is given, the blood-sugar rises steadily for an hour or two, the intensity of the rise being dependent on the gravity of the case. In the diabetic there is often little or no evidence of any mechanism for preventing the blood-sugar rising above the normal threshold value of approximately 0.18 per cent., and so glycosuria results. Generally, in a fairly severe case, the blood-sugar rises to 0.3 per cent. or more within one and a half hours to two hours. Here the usual mechanism is in abeyance, and in every case of diabetes the blood-sugar rises much higher than it ever does in the normal. This, however, is not the most striking

difference between the healthy and diabetic patient, for in the latter the blood-sugar fails to return for many hours or perhaps not at all, to the concentration present at the beginning of the experiment. The typical diabetic blood-sugar curve is therefore characterised by an increase of blood-sugar well above the renal threshold value, together with a very great delay in the return of the blood-sugar content to an approximately normal level. These two phenomena generally go together, but during the earlier stages of diabetes, when glycosuria is as yet only intermittent, it is

FIG. 2.



Diabetic (upper) curve compared with normal (lower) curve.

found, that though the blood-sugar concentration may never exceed the normal threshold value, the curve is much prolonged. In such cases it may take three or four hours for the blood-sugar to resume its normal level after a dose of 50 g. of glucose has been taken. Indeed, it is certain that one of the earliest indications of diabetes is a prolongation of the time required for the blood-sugar to return to normal

this glycosuria at once ceases. The absence of sugar in the urine, therefore, does not tell us whether the blood-sugar is subnormal or nearly as high as 0.18 per cent. What we do know is, that in people with normal kidneys, glycosuria cannot occur unless the blood-sugar is at least as high as 0.18 per cent. or rather more. It will thus be seen that there is not necessarily any essential virtue in keeping the urine just free from sugar, for in one patient with 0.19 per cent. blood-sugar, glycosuria might be present, while in another patient with, say, 0.18 per cent. blood-sugar, no glycosuria would be seen. The border line, so to speak, is a narrow one. This point is frequently forgotten in connexion with the treatment of diabetes, but it shows the advantage of blood-sugar estimations whenever these can be carried out. In some patients, and more especially in elderly individuals, the renal threshold value for sugar may be very considerably raised, so that even 0.3 per cent. or more sugar may be present in the blood without any glycosuria. In such patients urine examination is most deceptive, and effective control can only be exercised by means of blood-sugar investigations. A few examples of the results of sugar-tolerance tests in diabetic patients are given in Table I.

TABLE I.—Blood-Sugar Before and After Glucose.

Case.	Before.	Half hour after.	One hour after.	Two hours after.
1	0.124	0.193	0.281	0.245
2	0.162	0.235	0.321	0.290
3	0.120	0.192	0.224	0.162
4	0.320	0.451	0.426	0.391

RENAL GLYCOSURIA.

Though the normal average kidney does not permit of the passage of sugar until a concentration of over 0.18 per cent. is reached in the blood, there are many individuals whose kidneys will allow sugar to pass when the blood concentration is much lower than this. Since the blood-sugar always rises after a mixed meal, it is obvious that these subjects will tend to pass sugar after every meal. Instead of the normal threshold value, these patients may have a threshold value represented by any blood-sugar concentration between 0.1 or less and 0.18; obviously, glycosuria is a necessary feature of this condition. Renal glycosuria means simply that the kidneys allow sugar to pass through into the urine at a level of blood-sugar concentration that is much lower than usual; this blood-sugar concentration, however, is always within physiological limits, so that the only organs participating in the production of this condition are the kidneys. A similar condition can be induced experimentally by giving phloridzin. In this case, large amounts of sugar are passed in the urine, but, on examination, the blood-sugar will be found to be very low. A somewhat similar phenomenon is also very common during the first few months of pregnancy, the glycosuria so frequently encountered through this period being dependent on a temporary lowering of the renal threshold.

In these renal cases the sugar-tolerance curve is quite typical, for the highest point reached never exceeds the normal threshold value, and frequently the rise is very much less than normal. This results from the fact that sugar, which will normally accumulate in the blood and so raise the blood-sugar concentration, is thrown out in the urine. In other respects the curve behaves just as the normal does. After taking 50 g. of sugar by mouth the blood-sugar returns to the normal level in from one and a half to two hours or perhaps earlier, and the glycosuria then ceases. The mechanism of renal glycosuria is a simple one to understand, though the exact condition in the kidney which causes it is at present obscure. The amount of sugar passed in the urine in such cases depends principally on the exact concentration at which the kidneys begin to throw out sugar. Other things being equal, the lower this blood-sugar concentration, the more sugar will be excreted. There is no advantage to be

after a dose of glucose. As the malady progresses this is accompanied by a marked increase in the height of the curve as well. The curve obtained from a moderately severe case of diabetes after the ingestion of 50 g. of glucose is given in Fig. 2. The contrast between this and the normal curve shown alongside is very striking.

Sugar-Tolerance Tests in Diabetes.

Based on the above principles, various tests have been suggested to ascertain whether or not any given case of glycosuria is really diabetic. The so-called sugar-tolerance test which consists in giving to a patient about 50 g. of glucose dissolved in 2 or 3 oz. of water, and then estimating the blood-sugar at half-hourly intervals for two hours, is perhaps the most satisfactory method. The patient should have no food for two or three hours beforehand, and must not eat or drink during the test. If, after taking 50 g. of glucose the blood-sugar comes back to approximately the normal value of 0.1 per cent. within two hours of taking the glucose, then the case is not one of diabetes. For various reasons it is more satisfactory to do half-hourly blood-sugar estimations in these cases, but the same information can generally be obtained by means of a single blood-sugar estimation carried out on a patient two hours after the ingestion of 50 g. of glucose. If his blood-sugar is then approximately normal he is not a diabetic. In every healthy person the blood-sugar will be found to be normal after this period. In a certain number of elderly people the fall may be delayed to some slight extent, but in young and middle-aged subjects the blood-sugar ought generally to be back to normal in one and a half hours. It is this return to normal within a certain period that is most important in the interpretation of sugar-tolerance tests, though the maximum extent to which the sugar concentration rises in the blood also gives a good deal of information.

The Relation of Blood-Sugar to Glycosuria.

It will now be obvious that when glycosuria occurs the blood-sugar must be higher than 0.18 per cent.; whenever it gets to even a slightly lower level than

gained in endeavouring to divide renal glycosuria into different types, for this only tends to confuse a perfectly straightforward issue; there is, indeed, no essential difference between one case of renal glycosuria and another, except in so much as the excretion of sugar depends on what the level of the renal threshold happens to be in any particular patient. The figures given in Table II. show the results obtained by sugar-tolerance tests in some cases of this nature; in each instance 50 g. of glucose were given.

TABLE II.

Patient	1	2	3	4	5
Blood-sugar per cent. before taking glucose ..	0.091	0.108	0.116	0.123	0.100
After $\frac{1}{2}$ hour	0.132	0.176	0.168	0.187	0.142
" 1 "	0.112	0.112	0.131	0.167	0.106
" $1\frac{1}{2}$ hours	0.084	0.109	0.090	0.121	0.091
Urine-sugar per cent.—					
Before test	0.25	0.30	—	0.70	Traces
After test	2.1	3.5	0.6	1.3	2.2

It will be quite obvious that so-called renal glycosuria has nothing whatever to do with diabetes. That the condition is quite harmless seems to be proved by the fact that several patients have been examined, who are known to have had glycosuria for many years. The slight loss of carbohydrate may be a disadvantage, but practically this is never so great as to be of much importance. It is possible, of course, for a diabetic to have a lowered renal threshold, but such a condition is rare, though I have seen two cases of this nature. In contrast with the general impression at present prevailing, renal glycosuria is by no means a rare condition, and many patients now being treated as diabetics are suffering from nothing more serious than this complaint. Within the last four years I have examined more than 100 patients suffering from renal glycosuria. In not a few instances these patients were supposed to be diabetic and were being treated accordingly. The condition is frequently a familial one and may be sometimes traced back for several generations. It may occur in several members of the same family. As an indication of the great frequency of renal glycosuria I might state that it is now our custom at St. Thomas's Hospital to get all the students to carry out sugar-tolerance tests on themselves before allowing them to investigate patients. In every class we have had during the last few years we found from one to three students suffering from renal glycosuria. In addressing medical men on glycosuria it has nearly always been my experience that at least one doctor approached me after the lecture to tell me that he himself suffered from the condition. The glycosuria which is so frequently discovered accidentally during a life insurance or other medical examination is frequently found to be of renal origin, but in order to ascertain definitely what any glycosuria indicates, it is necessary to examine the blood and to carry out a sugar-tolerance test. Without exception such a test will settle the matter as far as renal glycosuria is concerned.

Another Mechanism in the Production of Glycosuria.

In some patients whose power of dealing with carbohydrate is quite efficient, glycosuria, other than that of renal origin above described, may occasionally be present. When a sugar-tolerance test is carried out on such patients it will be found that the blood-sugar rises considerably higher than the normal threshold value, and in this way simulates an ordinary diabetic curve. Instead, however, of remaining high, the blood-sugar quickly falls, and in one and a half hours or so reaches the normal level. Unlike what happens in diabetes, there is no difficulty whatever in removing the sugar from the blood once the sugar storage mechanism gets into play, but this mechanism appears to be delayed, so that the blood-sugar is allowed to rise above the threshold value for a short period, with the result that glycosuria follows. The very nature of the

curve obtained (see Fig. 3) is an indication that carbohydrate metabolism is quite efficient, since the curve is not in the least prolonged. The exact significance of this condition is at present not understood, but it does not seem to be in any way prejudicial to the patient.

The condition is not of common occurrence, but is rather puzzling when met with. In my monograph on diabetes I have applied the term "lag" to a typical curve of this nature, on the assumption that the phenomenon is due to a delayed activity on the part of the sugar storage mechanism.

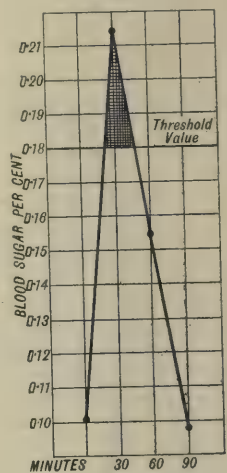
Some General Observations on Glycosuria.

Although the typical curve obtained by testing a diabetic patient by the sugar-tolerance test is a high, and especially a prolonged one, various conditions, other than diabetes, will in some measure produce the same type of curve. In practice it is found that one prolific source of glycosuria is immoderate use of alcohol. Alcohol apparently acts on the liver and tends to deplete the glycogen reserve, so that it is by no means uncommon to find sugar in the urine after a dinner in which alcohol plays a part. The effect of emotional disturbances and excitement in producing glycosuria is now well recognised. Possibly the glycosuria sometimes found during the medical examination of a patient may be nothing more than an indication of mental excitement and nervousness. Certain drugs also will produce glycosuria, especially thyroid extract, and the occurrence of glycosuria in endocrine disorders is familiar to all. In any case of glycosuria the medical man should attempt to elucidate such possible factors as those mentioned. Frequently he will have his reward, for by eliminating the aetiological factor, the glycosuria will disappear. In general it must be remembered that glycosuria, like albuminuria, may be an important feature, or it may be of no significance; it bears roughly the same relation to diabetes as albuminuria does to nephritis. Glycosuria is relatively common, while diabetes is, on the whole, a comparatively rare disease. This must mean that glycosuria has no essential relationship to diabetes, just as albuminuria is no definite indication of the presence of nephritis. Both conditions, when found, should be regarded as possibly important symptoms, but in neither case should the medical attendant rest content until he has done all he can to elucidate the cause. On finding glycosuria in a patient showing no definite symptoms of diabetes, a sugar-tolerance test is always indicated. Were this more frequently carried out many patients with glycosuria would be found to possess quite good powers in metabolising carbohydrate, and frequently the patient could be assured that his glycosuria would do him no harm. If, on the other hand, the result of such a test should suggest the presence of an early diabetes, prompt and efficient treatment gives the best chance to the patient. We can no longer rely on examination of the urine in such cases, and if we wish to get the best result we must have recourse to blood examination.

The Estimation of Blood-Sugar.

Since the introduction of the insulin treatment for diabetes, it is more than ever necessary that medical men should be able to carry out blood-sugar estimations. This will be referred to later when dealing with insulin. For the present, sufficient has been said as to the value of such investigations in all cases of glycos-

FIG. 3.



A typical "lag" curve.

uria, and the only question that arises is whether it is possible for the average medical practitioner to estimate the blood-sugar. It is quite true that many of the methods used for this purpose are elaborate, and quite unsuitable for anyone who has not a well-equipped laboratory at his disposal. Many of these methods necessitate the use of a colorimeter, and experience shows that colorimetric methods, while excellent in the hands of the trained observer working in a laboratory, are unsatisfactory for the general practitioner. Another objection to their use is the costly nature of the apparatus. For general use the apparatus must not be expensive, and the method must be simple and reliable. The writer has worked out a method¹ for the estimation of blood-sugar which can be performed by any medical man possessing the minimum of chemical knowledge and laboratory equipment, provided he has a little time at his disposal. The ease with which this method can be carried out with satisfactory results is obvious from the fact that our students, when doing it for the first time, almost invariably get correct results. In a class of 25 students or so carrying out observations on themselves the results generally vary from 0.09 to 0.12 per cent.—numbers which represent the ordinary blood-sugar values. The apparatus necessary may be obtained for a few pounds, and it is doubtful whether a simpler method can be evolved. Its accuracy has been amply substantiated both at home and abroad and the method is now in general use in many institutions in this country. It is also being used with success by several medical men in general practice; even when done roughly it will give results sufficiently accurate for clinical purposes.

TREATMENT OF DIABETES.

As soon as the diagnosis of diabetes is definitely established, we should begin treatment at once. Before the modern insulin treatment came into vogue we had to rely almost entirely on dietetic means, for no drug possesses the slightest beneficial influence on the condition. Contrary to a widespread belief, dietetic restrictions are just as essential when insulin is used as ever before, and it is important that the principles of modern dietetic treatment should be utilised in conjunction with the insulin treatment. For this reason a few points on diet in diabetes will be very shortly discussed here.

The dietetic treatment in vogue at present is associated with the name of Allen, and despite many claims by various observers it must be admitted that to Allen alone belongs the credit of having introduced more rational measures in dieting diabetic patients. The merit of Allen's work lies essentially in the fact that he alone brought forward experimental evidence for his conclusions. Allen removed the greater part of the pancreas from dogs, leaving behind a small portion of the organ intact. He found that the ultimate fate of such dogs depended on the diet. When a dog with a very small amount of pancreas was fed on a high diet, whether of carbohydrate or protein or fat, it gradually began to pass sugar in the urine, and soon developed all the symptoms of typical diabetes, with the result that death from coma took place. Such a dog, when fed on a low diet, maintained good health and showed no signs of diabetes. It thus became obvious that in the case of partially depancreatized dogs, the best way to maintain health was to give the lowest possible diet for the needs of the animal. Unfortunately, the condition of a dog with a small but healthy part of his pancreas left is essentially different from that of a person suffering from diabetes. In the latter case the disease is dependent on some change entirely different from the experimental removal of part of the pancreas, and is essentially progressive, otherwise the disease would never have manifested itself. That this progressive tendency can be accelerated by unsuitable diet is certain, but the

point to remember is that in human diabetes two factors are present: (1) An essentially progressive lesion absent in experimental animals; and (2) the detrimental effect of improper diet.

If the tendency to progression of the disease is very marked, dietetic treatment will not prove very satisfactory, but if, as frequently appears to be the case, this factor is not a very active one, then dietetic treatment will give excellent results. Consideration of these points will help us to understand why modern dietetic treatment alone frequently leads to disappointment. In such cases insulin gives wonderful results, and this is the type of case in which insulin will be most beneficial.

Some Principles of Modern Dietetic Treatment.

Briefly stated, modern dietetic treatment of diabetes consists in giving to the patient the minimum amount of food which will enable him to keep fairly fit and free from glycosuria, and, if possible, from acetonuria. To do this it is necessary to ascertain what amounts of the three ordinary classes of foodstuffs—carbohydrates, proteins, and fats—should be present in the diet. The subject is fully discussed in my monograph on Diabetes and Glycosuria, but the principles on which the diet should be built up will be referred to here very shortly.

The Building up of a Suitable Diet.

The first point to be considered is, What is the necessary minimum amount of food that would be required as a permanent diet for any given patient? It is now the custom to express food values in terms of calories, and for clinical purposes it is sufficiently accurate to assume that 1 g. carbohydrate = 4 calories; 1 g. protein = 4 calories; 1 g. fat = 9 calories. The total number of calories necessary for any given patient is calculated from the fact that for every pound of weight he will require roughly from 12 to 15 calories. Thus, a man weighing 140 pounds would require, as a minimum, from 1700 to 2000 calories, and in ordinary life would probably eat sufficient to give a good deal more than this. When the patient is leading a very sedentary life, he can sometimes get on fairly well with even less than the above minimum. Having ascertained the number of calories necessary, it is now essential to decide what amounts of the different classes of foodstuffs should be given to make up the requisite calories.

Amount of Protein Necessary.

Whatever the nature of the diet, it is necessary to give some protein, and experience shows that the minimum amount of protein necessary for health is about one-half a gramme per day for each pound the patient weighs. In a patient weighing 140 pounds it will therefore be necessary that his permanent diet should contain at least about 70 g. of protein.

Amounts of Carbohydrate and Fat Necessary.

It is very rare to find a diabetic patient who can take more than 80 to 100 g. of carbohydrate per day without passing sugar, and the great majority of severe cases can generally utilise not more than half of this amount. Some patients, indeed, can take only a very few grammes of carbohydrate per day. The exact amount suitable for each individual patient is ascertained by the usual well-known method of starving the patient until the urine is sugar-free, and then giving a series of diets containing increasing graduated amounts of all three foodstuffs. When sugar appears in the urine it may be assumed that the amount of carbohydrate contained in that particular diet is roughly the maximum which the patient can assimilate, and it is well to give rather less than this amount. For a permanent diet, the remaining calories must be made up from fat. For example, a patient weighing 140 pounds and therefore requiring a diet containing at least about 1700 calories, was found to pass sugar when on a diet consisting of 40 g. of protein and 40 g. of carbohydrate together with some fat. This patient's protein was ultimately increased to 70 g., and with

¹ For a complete description of this method see my monograph, "Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes," 1922 (Constable and Co., Orange-street, London). Many of the points referred to in this paper are more fully discussed in this book.

this 30 g. of carbohydrate were allowed, the necessary calories being made up by giving 150 g. of fat.

Food Values.

Many books dealing with food values are now obtainable, but for practical purposes I have found the following tables to be most useful; indeed, little more is required for the treatment of diabetes. As they may prove helpful to the general medical man I give them here. By their use a suitable diet can be made out for almost any patient.

TABLE III.—Showing Carbohydrate Content of Various Vegetables and Fruits.

Group.	ONE OUNCE CONTAINS—	
A	1 g. ch.	Cabbage, cauliflower, Brussels sprouts, lettuce, spinach, cucumbers, asparagus, marrow, rhubarb, celery, mushrooms, tomatoes, water-cress, seakale, leeks, radishes, grape fruit, endive.
B	2 "	Carrots, onions, turnips, beets, French beans.
C	3 "	Oranges, strawberries, gooseberries, cranberries, peaches, pineapple, water melon.
D	4 "	Green peas, artichokes, parsnips, pears, apples, currants, cherries, raspberries, apricots.
E	6 "	Potatoes, plums, prunes, bananas.

g.ch.—grammes carbohydrate.

TABLE IV.—Showing Approximate Content in Grammes of Protein, Fat, and Carbohydrate in ONE OUNCE of Foods.

	Carbo- hydrate.	Protein.	Fat.	Calories.
Bread (brown)	13	1.2	0	65
Bread (white)	15	2	0	75
Butter	0	0	23	212
Broth	0	1	0	5
Bacon	0	3	18	180
Cream (thin)	1	1	6	65
Cream (thick)	1	1	20	190
Chicken	0	6	1	34
Cheese	0	8	10	130
One egg	0	6	6	80
Fish (cod, whiting, haddock)	0	5	0	20
Meat (lean)	0	6	3	51
Milk	1.5	1	1	19
Margarine	0	0	23	212
Oatmeal (dry weight)	18	4	2	112
Potato	6	0.5	0	30
Shredded wheat	21	3	0	103

THE INSULIN TREATMENT OF DIABETES.

Insulin is a substance of unknown nature derived from the islands of Langerhans in the pancreas. The method of preparation of this product is somewhat tedious and laborious, but the principle of its isolation depends on a process of fractional precipitation with alcohol. By this means certain deleterious and irritating substances are left behind, and the insulin ultimately obtained in a form more or less suitable for clinical purposes. Various methods of purification of crude insulin are employed, and it may be said at once that the substance can now be prepared in such a state of purity that no local reactions follow its use. *Insulin must be given hypodermically*, and is of no value when given by mouth. In this connexion it is safe to assert that none of the pancreatic preparations given by mouth have any beneficial effect on diabetes, whatever other action they may possess. In the preparation of insulin great care has to be exercised to ensure that the product is sterile, for it is obvious that contamination of the ox pancreas, from which the insulin is prepared, by intestinal contents, might result in infecting the patient. All these difficulties, however, have been overcome and quite reliable insulin is now being prepared commercially. In this connexion the thanks of the community are due to the Medical Research Council, who took steps to control and promote the manufacture of insulin in this country, with the result that the samples now being made here are reliable in strength and action. Were it not for the measures taken by the Medical Research Council it is probable that the

country would now be flooded with useless preparations, and an excellent remedy might have fallen into disrepute.

Dosage of Insulin.

The strength of insulin preparations is at present ascertained by means of rabbit experiments. The amount of insulin required to bring the blood-sugar of a large starved rabbit to about 0.04 per cent. in two hours or so is taken as the basis of unitage. Generally, when the blood-sugar reaches this level, the animal goes into convulsions. These can be stopped by the introduction of sugar into the rabbit's stomach by a tube or by injection into the system. The amount of insulin required to produce the above effects in a rabbit is equivalent to about three units, according to the new nomenclature, and an ordinary minimum human dose is taken as representing three to four times this amount, or about 10 units. In many patients, of course, much larger doses may be given with impunity. Unfortunately, different rabbits vary very much in their response to insulin, so that the method of standardisation just described is not a very accurate one. Patients also vary to a great extent. It is important to have all insulin preparations standardised as carefully as possible, so that the different samples on the market may all have approximately the same strength. On the other hand, extreme accuracy is at present impossible, and however desirable scientifically, is not essential for the clinical use of insulin. Indeed, the present standardisation seems quite efficient for all practical purposes.

Some Symptoms Produced by Insulin.

Insulin is a powerful remedy, and in the hands of the inexperienced may give rise to certain difficulties. When an overdose is given, the patient frequently complains of certain curious symptoms which generally come on from an hour to a few hours after the injection. These symptoms consist of flushing, giddiness, local sweating, a sense of constriction about the chest and abdomen, collapse, and other manifestations; if this condition is unrelieved convulsions may follow. These symptoms appear to be of nervous origin, and are dependent on the fact that the central nervous system requires its nutrient blood to contain a certain amount of sugar. When, as the result of the action of insulin, the blood-sugar sinks to the neighbourhood of 0.04 per cent., the above symptoms ensue, and convulsions may set in. Addition of sugar to the depleted blood will at once remove all symptoms, so that there is little or no real danger if the patient is carefully warned to take sugar by mouth whenever any symptoms, such as those described, follow the injection of insulin. Sugar, when given by mouth, reaches the blood in a very short time, but it may, of course, be necessary to inject sugar intravenously in the case of an unconscious patient.

Effect of Insulin on the Diabetic Condition.

Insulin acts in tending to restore the diabetic patient to the condition of the normal individual. Apparently, in diabetes, a substance essential for carbohydrate metabolism is missing or present in insufficient amount, and the injection of insulin supplies this missing secretion. Consequently, in diabetes the therapeutic use of insulin results in a disappearance or lowering of the urinary sugar and ketone bodies. In subjects whose diets are carefully correlated with the insulin dosage, the blood-sugar may be kept within normal limits, and the urine free from sugar and ketone bodies. Very careful adjustment of diet to insulin is, however, required to produce this effect and frequent estimations of blood-sugar may be essential. It may be taken as a general rule that insulin will produce no deleterious effects as long as glycosuria is present, so that it is easy and safe to regulate the dosage by examining the urine. When sufficient insulin is given to render the urine sugar-free, the condition of the urine does not help us any more, and recourse must be had to blood-sugar examinations. Indeed, blood-sugar estimations are

almost essential in treating patients with insulin, but as circumstances might arise in which they could not possibly be done, it may be helpful to state that they are not absolutely necessary in all cases. Without the means of ascertaining the blood-sugar content, it is true that one is, to some extent, working in the dark, and it is to be hoped that every practitioner using insulin will make himself efficient in performing this comparatively simple manipulation. To begin with, however, this ideal result may not be easily reached, and as it is most important to prevent the occurrence of possible tragedies at this stage of the treatment, the following rules, based on my own experience of the remedy, may be found helpful in the treatment of patients. Many modifications of these suggestions may be made and they are only given as a general outline.

Rules for Treatment of Patients with Insulin.

1. Always make quite certain that the case is really one of diabetes. It is somewhat dangerous to treat certain cases, such as the renal glycosuria already described with insulin, since the blood-sugar in these may be already somewhat low. To exclude renal glycosuria give the patient a dose of glucose or ordinary cane-sugar (50 grammes) and get him to empty his bladder two and a half to three hours after the ingestion of the glucose; test the next specimen of urine passed for sugar. If sugar is then absent, or only a small amount is present, the case is not suitable for insulin, since the glycosuria is probably of renal origin. Also examine the urine for acetone and diacetic acid. If acetone is not present, the patient does not require insulin. Here it should be noted that acetone may be present in the urine of any patient if his diet has been recently changed to one containing a good deal of protein and fat and little carbohydrate. If possible, do a blood-sugar estimation, when the exact state of matters will be more or less obvious. Inquire carefully into the history of the patient and ascertain whether he has lost weight, and whether well-marked symptoms of diabetes are present. If he has not been dieted before, and is found to be suffering from diabetes, try the effect of diet before giving insulin; in such cases insulin may be used with advantage instead of the old starvation treatment, to bring the blood-sugar back to normal, at the early stages of treatment. When this happens insulin should be stopped, and, gradually, diets on the lines already described given. When a patient is doing fairly well on diet insulin should not be given.

2. Having decided that the patient is a suitable case for insulin, it is necessary to arrange matters so that he may be under observation. Give him a diet containing the necessary amount of calories for his weight, or rather somewhat less than this, and let the diet always contain from 30 to 40 grammes of carbohydrate. Divide the diet into two large meals in which practically all the carbohydrate is taken, and two small meals containing little or no carbohydrate and only a few calories. Warn the patient carefully that symptoms may possibly come on after the insulin injections, and tell him to eat a few sticks of barley-sugar ($\frac{1}{2}$ to 1 ounce) if these symptoms do come on. To provide against delay in taking sugar under these conditions, see that the patient has always a small stock of barley-sugar or other suitable preparation on his person.

3. Begin the treatment by injecting 10 units of insulin twice a day, 20 to 30 minutes before the large meals. Collect the 24 hours' urine and examine it for sugar. Continue this dosage for three days, when, if the urine still contains sugar, 15 units of insulin may be injected twice a day instead of 10 units. If after three more days of this treatment glycosuria still persists, the dose may be increased to 20 units in the morning followed by 15 units in the evening. If glycosuria persists after a few days of this dosage, give 20 units twice a day. If glycosuria now disappears, the dose is approximately correct for the diet, but unless facilities for blood-sugar estimation are available, it might now be safer to revert to a dose of 15 units in the morning followed by 15 units at night. This may be continued for a long period, but the same diet must be carefully adhered to. If the diet is deemed insufficient, a little more carbohydrate may be added to the two larger diets, and if this produces glycosuria the dose of insulin may be gradually increased in order to ascertain what amount will result in a urine with just a very small amount of sugar. If at all possible control the treatment from time to time with blood-sugar estimations. Unless this can be done, a dose of 20 units twice daily should perhaps not be exceeded, or, at any rate, should only be increased very carefully and gradually. The diet and insulin dosage of one of my cases is recorded below. The patient, a young adult, was suffering from the effects of severe and long-continued diabetes. On the régime given he is

free from glycosuria, and shows only very slight acetoneuria. He feels quite fit and is doing fairly heavy manual work.

Régime for Adult Patient Doing Fair Amount of Manual Work.

9.30 A.M.: Injection of 20 Units Insulin.

BREAKFAST.

9.45 to 10 A.M. :—	Carb.	Prot.	Fat.	Cal.
$\frac{1}{2}$ oz. oatmeal as porridge				
1 egg				
2 oz. bacon	25	16	70	794
$\frac{1}{2}$ oz. white bread ..				
$\frac{1}{2}$ oz. butter				
4 oz. vegetables (Group A)				
$\frac{1}{2}$ oz. olive oil				

1 P.M. :—

LUNCH.

1 egg				
1 oz. cheese	4	14	28	324
$\frac{1}{2}$ oz. butter				
2 Callard's bran biscuits				
4 oz. vegetables				

3.30 P.M. :—

TEA.

Tea with $\frac{1}{2}$ oz. cream ..	1	1	14	134
1 Callard's bran biscuit				
$\frac{1}{2}$ oz. butter				

5.30 : Injection of 15 Units Insulin.

DINNER.

6 P.M. :—				
5 oz. meat				
4 oz. fish				
$1\frac{1}{2}$ oz. white bread ..	26	53	52	784
1 oz. butter				
4 oz. vegetables				
$\frac{1}{2}$ oz. olive oil				

Total 56 .. 84 .. 164 .. 2036

With any of these diets the patient may take tea, coffee, or beef-tea in as large a quantity as desired.

THE VALUE OF INSULIN AND THE GENERAL OUTLOOK.

I have now treated nearly 20 patients suffering from severe diabetes and in every case with entirely satisfactory results. No untoward symptoms of any kind occurred in any case. Patients who were almost moribund a few months ago are now back at work, and three subjects who were first seen while in a state of diabetic coma are now quite fit. There can, therefore, be no question of the great value of the remedy. Its principal drawbacks are that it does not cure, but merely alleviates the condition while it is being given, and the fact that it has to be administered hypodermically. No doubt, in comparatively recent acute cases, its use may occasionally result in a return of tolerance, just as was sometimes the case with dietetic treatment, and I have seen one case of this kind, but it is impossible to say whether the same result could not have been achieved by diet. Since, however, this boy was actually in coma when I first saw him, insulin was naturally used. He is now taking quite a large diet with one single small dose of 5 units of insulin per day, and is apparently normal with a resting blood-sugar of about 0.1 per cent. and no glycosuria or ketosis. In long-established disease I have seen no signs of increase of tolerance after insulin, and should doubt whether, in such cases, much is to be hoped for in this direction. What exactly the future of insulin will be it is impossible to say. That its advent has provided the greatest therapeutic measure in the treatment of diabetes is certain. Probably many patients will ultimately learn to inject themselves, or make some arrangement for a friend to do this for them. Insulin is almost exactly on the same footing as thyroid extract in the treatment of myxœdema, with the disadvantage that insulin cannot be taken by mouth. That it is capable of eliminating the symptoms of diabetes and restoring strength and energy to the unfortunate sufferer is now definitely established.

SOME GENERAL OBSERVATIONS.

The suggestions given for the use of insulin may be modified almost indefinitely, but the principle of correlating diet to insulin dosage must always be observed. If the rules given are carefully adhered to, it would seem that there is no great danger in the use of the remedy. Care must, of course, be taken that the patient is not allowed to fast too long after the injection, but this is an obvious point.

One of the most striking features of insulin treatment is the rapidity with which patients put on weight; it is no uncommon occurrence for them to gain a stone in about ten days. Also, in many cases, the ketosis rapidly diminishes, even though fairly considerable amounts of sugar may persist in the urine. Unpleasant symptoms are much more easily produced by insulin in the case of mild diabetes than in the severer types. In my experience, long-standing cases with much wasting and passing very large amounts of sugar and ketone bodies are not likely to show untoward results even when fairly large doses of insulin are given. Such cases frequently stand insulin well. In short, the worse the case the less dangerous does it appear to be to give large doses of insulin. In this respect, it must be observed that many apparently severe cases are really not of a severe nature at all, and often respond very readily to diet. The inexperienced observer might take this condition for a very severe type, but a little care will show that such cases are almost invariably of short duration, and are frequently suffering chiefly from the effects of unsuitable diet. If the case is a long-standing one with severe symptoms and marked glycosuria, insulin may frequently be used with impunity in larger doses than above suggested, but the usual precautions must be taken and graduated doses given at first. With regard to the part played by insulin in the treatment of diabetic coma, it would appear that if the patient is treated before the symptoms become too intense recovery is the rule. Here it is advisable to inject immediately at least 20 units of insulin; this may be followed by another 20 units in a short time if the symptoms do not improve. The usual treatment of diabetic coma, consisting of the administration of large amounts of fluid either by mouth, intravenously, or subcutaneously, together with attention to the bowels, and the other usual procedures should be combined with the insulin treatment. Insulin may be a most dangerous remedy if great care is not taken in its use, but if the dosage given is not large enough to render the urine sugar-free, and if the most strict precautions to ensure that the patient always gets food containing carbohydrate shortly after each dose are taken, then, as far as my experience goes, the remedy would appear to be a safe one.

ON THE MODE OF ACTION OF VITAMINS.

By W. CRAMER, D.Sc. EDIN., PH.D. BERL., M.R.C.S.
(From the Laboratories of the Imperial Cancer
Research Fund.)

IN order to understand the mode of action of vitamins it is necessary to go behind the alterations in growth resulting from vitamin deficiencies. The growth of a highly differentiated animal is affected by so many different intrinsic factors—such as digestive disturbances, infections, and toxæmias, which need not necessarily be virulent and obvious, and alterations in the endocrine organs—that one is not entitled to correlate variations in growth directly with food factors by postulating that these food factors are essential for the general biological process of cell growth, as is done in the case of vitamins, without having excluded the existence of definite pathological lesions which would account for the arrest of growth and for the decline of the animal.

In previous papers¹ my collaborators and I have tried to place the conditions produced by deficiency of vitamins on a pathological basis by correlating the general conditions produced with definite pathological lesions in specific tissues. Thus, we attributed the general marasmus and fall of temperature which occurs when vitamin B is withheld to the atrophy of the lymphoid tissue which then develops. We adduced evidence that in the absence of an actively

functioning lymphoid tissue the absorption and assimilation of food from the intestine is impaired. We found conclusive proof of this view in the fact that when atrophy of the lymphoid tissue is produced by radiation, the same general effect is produced—namely, marasmus and fall of body temperature. We pointed out, further, that it was not only unnecessary to postulate for the vitamins some vague general action which could not be defined, or to assume that the presence of vitamins is necessary for the life of every cell in the body, but that such assumptions were not in accordance with observed facts. We were able also to show² that the assumption inferred in the current conception of the mode of action of vitamins, that these substances have no positive action, was incorrect; an immediate stimulating effect on the processes of food absorption from the intestine could be demonstrated as occurring in perfectly normal animals which had never been subjected to any dietetic deficiency. Here, again, the immediate effect of vitamin deficiency was identical with the effect produced by small doses of radiation. The increased susceptibility to certain types of avirulent infections, which is the characteristic of animals subjected to deficiency in the fat-soluble vitamin A, was found by us always to be associated with a great diminution in the number of platelets. Again, this effect could be produced by exposure to radiation in doses larger than those necessary to produce a lymphopenia, and such radiated animals showed an increased susceptibility to infections.

Intestinal Lesions in Vitamin-A Deficiency.

In searching for the origin of these infections we were guided by the observation that the infections are almost always due to avirulent bacteria, and that the blood or the lymph glands are sometimes found to be infected even when there is no obvious external lesion, such as xerophthalmia. In examining the intestinal tract for changes which might be the starting-point of such infections we have found very definite lesions which are illustrated in the accompanying figures. The sections are longitudinal sections and are always taken from the same place—i.e., the lower end of the small intestine, two inches upwards from the cæcum. This site was selected because any change that does occur appears to be most pronounced in that region. Fig. 1 is the typical appearance of the mucous membrane of rats which have since birth been fed on a vitamin-rich diet. Fig. 2 represents the appearance of the mucous membrane of a rat which had been kept on our ordinary laboratory diet of bread and water, maize, and rice. Such a diet, as stated in a previous paper, enables the rats to grow and breed, but they grow more slowly than the rats kept on a vitamin-rich diet, and succumb more quickly when vitamin A is withheld. We have described the effect of such a diet as "vitamin-underfeeding." Fig. 3 is from a rat which has been kept on a vitamin-A free diet for five weeks and was just beginning to develop xerophthalmia. It shows profound atrophy of the villi and necrosis of the upper parts of many of the villi. Fig. 4 is from a rat in an advanced stage of B deficiency; it had been kept for four weeks on the basal ration plus cod-liver oil, and had a temperature below 35°C. The villi, although differing in appearance from the normal, show no atrophy and no necrosis.

In addition to these gross changes an abundance of protozoa, mainly *Giardia intestinalis* (*Lamblia intestinalis*), are found in the lumen of the intestine of rats in advanced vitamin-A deficiency. These are probably normally present in the intestine in small numbers, but the absence of vitamin A enables them to proliferate rapidly, and to penetrate down between the villi, where normally they are never present. This fact may be of importance in determining the pathogenicity of certain organisms; they may be non-pathogenic on one diet and become pathogenic by variation of the diet. It may also be of use in the experimental infection of animals with such organisms. The intestinal bacteria also appear to be present in

larger numbers than normally, and—what is more significant—can often be seen adherent to the villi, especially the necrotic tips; while normally the bacteria remain confined to the central lumen. A very striking effect seen frequently in the caecum is illustrated in Fig. 5. In the caecum the bacteria often

invade the mucous glands and are found in dense masses filling the lumen of the gland right down to the bottom. In normal rats such a condition may occur exceptionally in a few glands, but in a rat suffering from A deficiency this is the rule, and affects a great many of the glands of the caecum. The figure

FIG. 1.



Small intestine of rat (longitudinal section) kept on a vitamin-rich diet. Rat No. 523 (see Fig. 6). Fixed in formol saline ($\times 60$).

FIG. 2.



Small intestine of rat (longitudinal section) kept on the ordinary laboratory diet. Rat No. 511 (see Fig. 6). Shows the effect of vitamin underfeeding as compared with Fig. 1. Formol saline ($\times 60$).

FIG. 3.



Small intestine of rat (longitudinal section) kept on a diet free from vitamin A for five weeks. Rat 529. Formol saline ($\times 60$).

FIG. 4.



Small intestine of rat (longitudinal section) kept on a diet free from vitamin B for four weeks. Rat 554. Formol saline ($\times 60$).

FIG. 5.



Mucous glands of caecum of rat kept on a diet free from vitamin A. Rat 529 (same rat as Fig. 3). Formol saline ($\times 410$). Stained with Murray's Nile-blue—van Gieson method for bacteria, which are seen filling the lumen of the glands. Note cell division in wall of distended gland.

shows a gland which is actually distended by a mass of bacteria in addition to a few round bodies, probably encysted protozoa. The neighbouring gland, of which only the opening is shown in the drawing, is also invaded by bacteria but not distended. Cestodes, also, are present much more frequently in rats kept on a vitamin-free or vitamin-restricted diet than in rats on a vitamin-rich diet. Rohdenburg and Bullock showed that the cysticerci of *Tænia crassicolis* which form in the liver of rats lead frequently to the development of a sarcoma. Here, again, the diet may be of importance in facilitating the infection.

This intestinal lesion is a further demonstration of the application of the law already referred to, that vitamin deficiencies and exposure to radiations produce the same general effects. For extensive degeneration of the intestinal epithelium has been described by Whipple and his collaborators³ as occurring after exposure to large doses of X rays. It was also observed by Lazarus-Barlow⁴ after exposure to a very large amount of radium, and Mottram has observed it after comparatively small doses of radiation from radium. Mottram⁵ also noticed the proliferation of protozoa and the invasion of the glands of the cæcum by bacteria; he is inclined to attribute the lesion to a disturbance in the secretion of mucus. This effect probably explains the almost regular occurrence of diarrhoea after the application of radiation to the abdomen, and is obviously a factor imposing a severe limitation upon the application of massive doses of radiation to the abdomen.

General Effects Observed in Vitamin-A Deficiency.

This lesion of the intestinal mucous membrane is an adequate explanation of the different general effects observed in vitamin-A deficiency: cessation of growth and occurrence of bacterial infections. Cessation of growth in a young animal must naturally result from an atrophic condition of the intestinal mucous membrane which interferes with the absorption of food. It is equally obvious that such a condition affords the intestinal bacteria a ready access to the tissues and the blood-stream. It is known that one of the mechanisms by which the body defends itself against the invasion of the blood by bacteria—especially avirulent bacteria—is the agglutination of the bacteria by the blood platelets, and that an intravenous injection of such bacteria is followed by a temporary diminution in the number of platelets. In vitamin-A deficiency the progressive atrophy of the intestinal mucous membrane leads to a continued and increasing invasion of the blood-stream by intestinal bacteria which are being agglutinated by the platelets. This continued and progressive drain on the platelets may in itself be the explanation of the thrombopenia which sets in sooner or later in vitamin-A deficiency; or there may be a direct atrophic change in the tissue or cells which form platelets. Observations on the effect of light indicate that the latter alternative is probably correct. Eventually the number of platelets is diminished to such a low level that the defence against the bacteria becomes ineffective.

When vitamin A is supplied again in abundance by giving cod-liver oil the intestinal lesion heals over rapidly; the invasion of the blood-stream by bacteria is arrested, the platelets rapidly increase in number, and the normal defences of the organism are enabled to deal with the avirulent bacteria. We have here again two possible alternatives: cod-liver oil may have a direct stimulating effect on the platelet formation or the increase in number may be due merely to removing the drain on the platelets by arresting the bacterial invasion from the intestine. This will be referred to again in discussing the effect of light on the organism. It is interesting to note that in the healing over of the intestinal mucous membrane, the epithelial cells in the crypts of Lieberkühn are mainly, if not entirely, concerned, since only there can active cell division be seen. I have never seen any mitoses in the villi themselves. It would appear, therefore, that normally the intestinal

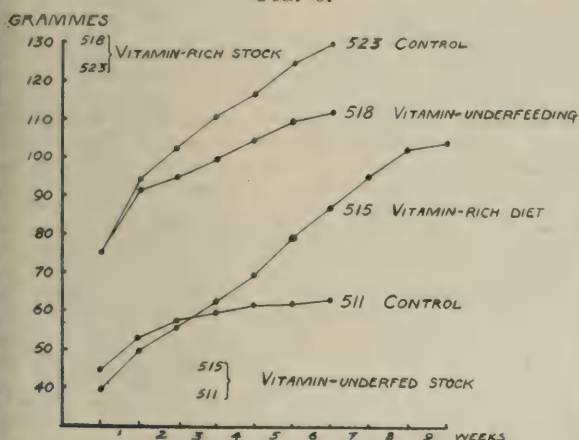
epithelium regenerates itself from the cells most deeply situated, very much in the same way as the skin epithelium is regenerated.

Another observation of general importance is that the condition of the intestinal mucous membrane varies, even on natural diets, with the richness of the diet in vitamins. In a stock kept on a vitamin-rich diet the villi of the intestinal mucous membrane are larger and more massive than in a stock kept on our ordinary laboratory diet, which contains just enough vitamins to enable the animals to grow and to breed and to prevent the onset of obvious disease, but has a very restricted content of vitamins. A comparison of Fig. 2 from an animal on such a vitamin-restricted diet with Fig. 1 from an animal on a vitamin-rich diet shows this difference clearly. I have given intentionally in Fig. 2 the optimum condition of the intestine of rats fed on our ordinary laboratory diet. Occasionally one finds in rats kept on this diet a much more atrophic condition, sometimes with extensive necrosis of the villi resembling the condition illustrated in Fig. 3. In a previous paper⁶ I have shown that animals from stocks kept on such a diet restricted in vitamin content, or "underfed with vitamins" as it was called, react much more rapidly to a vitamin-A deficiency: they will stop growing at once when vitamin A is withheld, and develop the typical eye lesion within eight to nine weeks, while animals from a vitamin-rich stock, kept in the same cage on the same diet, may continue to grow actively for several weeks, may not develop the eye lesion within six months, and at the end of that time have quite a normal appearance, although eventually they decline in health. The difference in the condition of the intestine in the two stocks explains this apparently paradoxical phenomenon; atrophy of the intestinal mucous membrane will, of course, proceed much more rapidly in an animal in which the full development of the intestinal mucous membrane has never been attained, and may even be definitely atrophic owing to having been kept since birth on a vitamin-restricted diet. The fact that rats apparently normal, in the sense that they do not show any macroscopic obvious sign of disease, may have definite pathological lesions in the intestine introduces a fallacy into vitamin experiments which has not received consideration. This fallacy can be guarded against, although not entirely eliminated, by using for such experiments only animals bred in the laboratory and kept on a diet of a known and constant vitamin content. In order to illustrate graphically the extent to which the general condition of an apparently normal rat as expressed in its weight curve is dependent, not merely on the presence of vitamins, but on the presence of abundant vitamins, I give curves (Fig. 6) showing the typical behaviour of four normal rats belonging to two litters of practically the same age. Rats No. 511 and 515 belong to litter A, which had been kept since birth on our ordinary laboratory diet (bread, water, maize, and rice); rats 523 and 518 belonged to another litter of the same age and kept on the same diet supplemented by marmite and cod-liver oil. When three months' old, one rat of the vitamin-underfed litter A was placed on the vitamin-rich diet (No. 515) and one rat of the vitamin-rich litter B was placed on the ordinary laboratory diet and thus subjected to vitamin-underfeeding (No. 518). The curves readily explain themselves in the light of our observation that vitamins have a stimulating action on intestinal functions.

It should be noted that the rats from the "vitamin underfed" litter are in appearance perfectly healthy looking normal animals; they are, in fact, our usual laboratory stock. They only differ in appearance from rats of the same age, kept on a vitamin-rich diet, by being smaller. If in the present experiment the exact age of rats Nos. 511 and 515 had not been known, they might have been taken for younger animals which had been kept on a vitamin-rich diet. The experiment shows how even such healthy animals may benefit by increasing the supply of vitamins. The great susceptibility of the intestinal mucosa to

the supply of vitamins, especially the fat-soluble vitamin A, and the occasional occurrence of atrophic and sometimes of definite pathological changes on a natural diet which enables the animal to lead an otherwise normal vegetative and reproductive life has an important bearing on problems of general importance. For since this diet, so far as its restricted vitamin content is concerned, is not unlike that on

FIG. 6.



Weight curves of four rats of the same age belonging to two litters. Rats Nos. 511 and 515 had been kept on the laboratory diet since birth; rats Nos. 518 and 523 had been kept on the laboratory diet supplemented with cod-liver oil and marmite. The curves illustrate the stunted growth of healthy rats produced by vitamin underfeeding, and the beneficial effect of the addition of vitamins even on such healthy rats. The condition of the intestine of two of the rats (Nos. 511 and 523) is represented in Figs. 1 and 2.

which large classes of civilised mankind live, this factor may account for numerous conditions of vague ill-health, stunted growth, and intestinal derangements and toxæmias for which there is at present no adequate explanation.

Vitamins as "Food Hormones."

If we review the foregoing statements concerning the mode of action of the two vitamins A and B which are essential for the normal life of the rat, we find that the absence of these vitamins interferes with the usual functions of the digestive tract. In the absence of vitamin B the normal assimilation of food is impaired owing to the atrophy of the lymphoid tissue. In the absence of vitamin A there is the obvious impediment due to the atrophic intestinal mucosa. This relationship is analogous to the relationship which exists between certain endocrine organs and specific tissues. Thus we get atrophy of the uterus when the ovary is removed, and atrophy of the testes when the pituitary is damaged or partially removed. From such facts the existence of a hormone with a specific stimulating action is postulated. The stimulation is in many cases only inferred from the occurrence of atrophic changes in the absence of these hormones. The observations with vitamins provide more conclusive evidence of the existence of a direct specific stimulating action. There is the rapidity with which the lymphoid tissue or the intestinal mucosa, as the case may be, recovers, when the appropriate vitamins are administered after a previous deficiency. Further, there is evidence that the organism recovers more rapidly from a lymphopenia induced by radiation when an abundant supply of vitamin B is administered. The most conclusive proof of the existence of a direct stimulating effect of vitamins on the intestinal activity of perfectly normal animals was given by us in a previous paper in which fat absorption was taken as a microchemically demonstrable criterion.

These observations, then, lead to the conception that these food-accessory substances, called vitamins, are "food-hormones"—that is to say, the different articles of food contain, in varying but always small

amounts, substances having a drug-like stimulating action on the digestive tract. And, further, the full functional activity of the digestive tract is dependent on an abundant and continued supply of these substances in the food, in the same way as the full functional activity of the uterus is dependent on a continued supply of the ovarian hormones. We can recognise in these food hormones from their specific mode of action two groups of substances—that group which stimulates the lymphoid tissues and is essential for its functional integrity, now known as the water-soluble vitamin B, and that which stimulates the intestinal mucous membrane and is necessary for its integrity, now known as the fat-soluble vitamin A. The latter has also directly or indirectly a stimulating effect on the formation of the blood platelets. We may notice, in passing, that this conception brings out a relationship between an organism and its environment which is interesting from an evolutionary point of view: the apparatus which is responsible for the absorption of food in a highly differentiated animal is itself dependent for its functional integrity upon the presence in the food itself of these hormone-like substances.

Therapeutic Applications.

In a previous paper the necessity of ensuring an abundant supply of vitamins in the food, especially of the young, was pointed out. It was shown that there is such a condition as "underfeeding with vitamins" which does not manifest itself by any obvious signs of disease, but which prevents the organism from attaining its full development and makes it more susceptible to dietetic disorders. The fact that the intestinal mucous membrane is less fully developed in such vitamin-underfed animals lends further support to this view.

But our observations suggest further that preparations such as cod-liver oil or yeast preparations, which are especially rich in these food hormones, represent drugs with definite actions which may be of considerable therapeutic value in conditions not necessarily due to vitamin deficiency or vitamin underfeeding. Certain forms of marasmus in infants, not due to deficiency of vitamins, are stated to yield rapidly to the administration of preparations rich in vitamins. Probably the primary lesion in these conditions is an imperfect development of the digestive tract.

Dr. William Hunter⁷ attributes great importance to lesions in the digestive tract in the aetiology of pernicious anæmia, and it is suggestive that we have repeatedly observed an anæmia to set in both in vitamin-A deficiency and after exposure to radium, where intestinal lesions occur. It is well known that the anæmia produced by exposure to radium is of a pernicious type. Dr. J. A. Murray has informed me that, in his experience as a pathologist to a lunatic asylum, he has frequently observed atrophic lesions in the intestine of patients suffering from melancholia. It seems possible that the administration of vitamin-rich preparations may be of use in such conditions.

Vitamins and Light.

Observations on the effect of light on the organism which we have carried out in collaboration with Dr. A. H. Drew have shown that light acts as a stimulus to the production of blood platelets. We intend to publish the results in detail elsewhere. Here I shall deal only with that aspect of the subject which has a bearing on the action of the fat-soluble vitamin A. Rats kept in the dark since birth show a considerable reduction in the number of platelets. They exhibit no gross intestinal lesions, their growth and appearance is normal when compared with rats kept in daylight on the same diet, and they do not show the characteristic infections (xerophthalmia, septic lymph glands) appearing in fat-soluble vitamin deficiency. But when exposed to such a deficiency they develop these lesions sooner than rats kept in daylight. Conversely, when rats are kept on a diet free from vitamin A the application of light delays the fall in

the number of platelets. It also delays the general decline of the animal and the onset of xerophthalmia, although it cannot altogether prevent them. The apparently paradoxical fact that light can to a certain extent counteract a dietetic deficiency can thus be readily explained on morphological grounds; vitamin-A deficiency produces a twofold lesion—a lesion in the intestinal mucosa and a diminution in the number of platelets. Light acts as a stimulus to the formation of platelets, and thus strengthens one of the defensive mechanisms against bacterial invasion from the intestine.

Summary.

From observations on the pathological lesions induced by vitamin deficiencies a mass of evidence has gradually accumulated which points to the digestive tract as the key to the problem of the mode of action of these food accessory substances. The functional integrity of the digestive tract is dependent on the presence in the food of certain substances with specific drug-like actions, very much in the same way as the functional integrity of the uterus is dependent on a hormone produced by the ovary. These accessory food substances may therefore be looked upon as "food hormones." Two groups with different specific actions can at present be distinguished—one group (now called the water-soluble vitamin B) has a specific stimulating effect on lymphoid tissue. The other group (now called the fat-soluble vitamin A) has a specific stimulating effect on the intestinal mucous membrane, and also directly or indirectly on the formation of blood platelets. These specific effects afford an adequate explanation of the general changes produced in an animal by restricting or completely withholding vitamins from the food.

An interesting relationship is thus brought out between an animal and its environment; the food itself contains specific substances on which the integrity of the apparatus responsible for the digestion and absorption of food depends. The therapeutic applications following from this conception are briefly discussed.

Addendum.—The view that vitamins have a drug-like action on the digestive tract which may be used for therapeutic purposes has received confirmation from some recent observations of Murlin and Mattill "on the laxative action of yeast,"⁸ which have appeared since our paper was sent in for publication. Murlin and Mattill have tested some old clinical observations of a number of French clinicians,⁹ who found brewer's yeast to be a valuable remedy in intestinal disorders. Some recommend it as a laxative, others find it an important remedial agent in enteritis, typhoid, and various types of diarrhoea, including diarrhoea in infants. The carefully controlled investigations of Murlin and Mattill show that fresh yeast has a distinct laxative effect in normal men. They also find a prolonged increased excretion of uric acid in the urine, and evidence of diminished intestinal putrefaction. Murlin and Mattill do not refer these effects to the presence in the yeast of water-soluble vitamin B, but are inclined to attribute the effect to the nucleins of yeast. These effects on man are in complete agreement with our observations in rats of the effect of vitamin B, given in the form of a commercial preparation of autolysed yeast. The fact that yeast has a laxative effect in normal people does not exclude, as Murlin thinks, the possibility that yeast in virtue of its vitamin-B content might have a remedial effect in certain types of enteritis. His results read in the light of our conclusions make further clinical observations desirable, preferably where autolysed yeast is used.

References.

1. Cramer, W., Drew, A. H., and Mottram, J. C.: THE LANCET, 1921, i., 963; 1922, ii., 1202; Proc. Roy. Soc., Ser. B., 1922, xciii., 449; Brit. Jour. Exp. Path., 1923, iv., 37.
2. Mottram, Cramer, and Drew: Brit. Jour. Exp. Path., 1922, iii., 179.

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THE TREATMENT OF AURICULAR FIBRILLATION BY QUINIDINE SULPHATE.

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AURICULAR fibrillation is a functional disorder of rhythm arising in a heart that was previously contracting with an orderly regular rhythm known as sinus rhythm. Normally the healthy adult heart contracts some 70 to 80 times per minute, in response to impulses generated and discharged at a regular rate. These impulses arise in the pace-maker of the heart—the sino-auricular node, a small collection of fibrous tissue in which are numerous specialised muscle fibres, some nerve cells, and some nerve fibres; it is situated in the right auricle, near the opening of the superior vena cava, and the vagal and sympathetic nerve-trunks are connected with it. When auricular fibrillation occurs, the function of the pace-maker remains in abeyance, and its rôle is taken up by the muscle fibres of the auricular walls. These fibres have hitherto only been accustomed to conduct impulses from the pace-maker to the ventricles. With the onset of auricular fibrillation they assume a new function, and generate some 400, 500, or 600 impulses per minute.

In auricular fibrillation, then, these impulses replace the 70 to 80 impulses formerly generated by the specialised fibres of the pace-maker; they are conveyed by the auriculo-ventricular bundle to the ventricles, which cannot respond to so large a number of impulses, but do respond to many of them, albeit in a disorderly fashion; thus the ventricular contractions follow one another at irregular periods and are of varying force. Consequently when auricular fibrillation occurs, a pulse previously regular in force and rhythm becomes totally irregular in both respects—becomes, in fact, the characteristic and generally rapid pulse of auricular fibrillation. This change of pulse coincides with virtual paralysis of the auricle. Sir James Mackenzie predicted this paralysis in 1902, although in 1907–08 he changed his view, arguing that when this "pulsus irregularis perpetuus" occurred auricles and ventricles contracted synchronously, and he called the irregular rhythm nodal rhythm. During the years 1909–11 Sir Thomas Lewis proved that when this type of pulse occurred, the auricles were in a state of passive distension and their walls exhibited the fine movements known as fibrillation, a condition readily produced experimentally in animals by faradisation of the auricles.

Auricular fibrillation does not arise unless there is some pathological condition of the myocardium; it may accompany valvular disease of the heart, or myocardial degeneration without disease of the valves. It occurs in rheumatic and non-rheumatic hearts, in both sexes and at all ages, though it is extremely rare in childhood. Its presence can generally be inferred by the stethoscope alone, but more reliable information can be obtained from a sphygmographic tracing of the radial artery, while a simultaneous record of the radial artery and jugular vein by means of the polygraph will yield a still more certain diagnosis. The electro-cardiograph alone furnishes absolute proof of the new rhythm.

(Continued from preceding column.)

3. Warren, S. L., and Whipple, G. H.: Jour. Exp. Med., 1922, xxxv., 187.
4. Lazarus-Barlow, W. S.: Medical Uses of Radium, Medical Research Council, Special Report, Series No. 62, 1922.
5. Mottram: Proc. Royal Society of Medicine, Section of Electro-therapeutics, xvi., 1923.
6. Cramer: Brit. Jour. Exp. Path., iii., 1922, 298.
7. Hunter, W.: Proc. Royal Society of Medicine, Section of Medicine, xvi., 1922.
8. Murlin, J. R., and Mattill, H. A.: Amer. Jour. of Phys., lxi., 1923.
9. Roos: Semaine Médicale, 1900, p. 382; Faisans: Bull. de la Soc. méd. des Hôpitaux, 1900, quoted from Murlin and Mattill, where a full bibliography is given.

Why Does Auricular Fibrillation Call for Treatment?

Sooner or later, and generally sooner, auricular fibrillation leads to cardiac failure, and for this reason calls for treatment. Little more than 20 years ago the view held was that when cardiac failure set in the pulse frequently became irregular. To-day we realise that the irregular rhythm of the pulse, or rather the irregular action of the heart, of which the pulse is the indicator, causes the heart to fail. Sir Thomas Lewis points out that in 60 to 70 per cent. of the cases of cardiac failure in the wards of general hospitals auricular fibrillation is present; and I would add that the vast majority of these cases would not be in-patients had not auricular fibrillation occurred. Out of 30 heart cases with auricular fibrillation under my care at the Queen's Hospital, Birmingham, during the past 18 months, more than half had no symptom of any cardiac disease whatever until the onset of auricular fibrillation. In the remaining cases shortness of breath on exertion or palpitation preceded the onset of auricular fibrillation, but as a rule were not sufficient to interfere with an active life. With the onset of auricular fibrillation more or less chronic invalidism followed. The following cases are typical.

CASE 1.—A motor engineer, aged 29, was admitted into hospital on Nov. 7th, 1922, with a hypertrophied heart (the apex beat was in the fifth space, 4 inches from the mid-sternal line, the cardiac impulse was strongly heaving), and the physical signs of mitral stenosis with auricular fibrillation. He had an attack of rheumatic fever at 9 years of age, and was in bed for two months. Had lived a normal life since that time, and had carried on his occupation uninterruptedly until five weeks before admission, although there was evidence of some restriction in the response of his heart to effort, in consequence of which he had given up cycling. Presumably auricular fibrillation occurred five weeks before admission, when, on his way to work, going uphill at his ordinary pace, he was suddenly seized with violent palpitations and a sense of suffocation. He rested for some minutes, and then managed to reach the factory in a state of great distress. Immediately after his arrival he was taken home in an ambulance, and remained in bed for four weeks. A week later he was admitted into hospital, and 20 days after admission sinus rhythm was restored by five doses of 6 gr. quinidine sulphate.

CASE 2.—A blacksmith, aged 62, was admitted into hospital on Nov. 3rd, 1922, with a large heart (the cardiac impulse was in the fifth space, 5½ inches from the mid-sternal line), and auricular fibrillation. There was no evidence of valvular disease; the myocardial change was probably of rheumatic origin, for about 12 years ago he had been laid up in bed for two or three weeks with what was probably an attack of rheumatic fever. He had, however, never known breathlessness until one day in July, 1922, when walking uphill, he suddenly became breathless, and realised some change in the heart's action. His doctor sent him to bed the same day, and he remained there for two months. With this rest breathlessness improved up to a point, but on getting up oedema of the legs and scrotum appeared, and he was only able to walk a very short distance on the level. In this state he was admitted to hospital, and three weeks later sinus rhythm was restored, after two doses of 6 gr. quinidine sulphate.

Here there were no symptoms of any cardiac inefficiency until auricular fibrillation occurred; in the first case there was some evidence of cardiac inadequacy over a period of years, but no serious cardiac failure until auricular fibrillation set in.

The Two Forms of Auricular Fibrillation.

Auricular fibrillation is met with in two forms: (1) A temporary affection, occurring in paroxysms lasting a number of hours, days, or weeks, and forming one of the varieties of paroxysmal tachycardia. (2) A chronic affection which is generally permanent—I say generally permanent, because even where fibrillation has persisted for some months it may cease spontaneously, and the cardiac contractions may again come under the control of the pace-maker. Auricular fibrillation is only a functional disorder; there is no a priori reason why sinus rhythm should not be re-established however long the auricles have been fibrillating. Never-

theless the rule is, that once established, the new rhythm is permanent and exceptions are rare.

Attacks of paroxysmal tachycardia due to paroxysms of auricular fibrillation either terminate spontaneously, or can be terminated by digitalis, and with the cessation of the paroxysm the normal sinus rhythm is re-established, for this is the meaning of the term "paroxysmal tachycardia." The administration of quinidine sulphate in these cases, for the purpose of restoring sinus rhythm, need not therefore be discussed. It is reported, however, that the drug has been used with advantage for controlling the frequency of the attacks in paroxysmal auricular fibrillation.¹

Chronic or permanent auricular fibrillation is met with in three classes of cases, which may be described as (1) temporarily disabled; (2) walking cases; (3) permanently disabled.

(1) *Temporarily Disabled*.—Under this heading I group the majority of cases of auricular fibrillation as seen in practice. The patient is compelled to be in bed; dyspnoea is severe, and generally amounts to orthopnoea; there is oedema, cyanosis, fullness of the jugular veins, albuminuria, enlarged and congested liver, and possibly evidence of congestion and oedema of the lung bases. The pulse is rapid, 120–150 per minute, and irregular in force and rhythm; a false impression of the cardiac contractions is frequently given, as many of the beats fail to affect the radial artery at the wrist. Under treatment, rest in bed and digitalis, these cases do well and pass into Class 2.

(2) *Walking Cases*.—These patients, in spite of auricular fibrillation, can lead active and often strenuous lives, either without digitalis, or with the help of an occasional course of digitalis, or by taking small doses of the drug regularly. They may live in comfort for years, but from time to time are liable to lapse into Class 1, from which rest in bed and a course of digitalis will restore them to Class 2. For the most part Class 2 are the convalescents of Class 1, although occasionally patients are found belonging to this class who have never suffered from a severe attack of cardiac failure.

(3) *Permanently Disabled*.—These are cases of auricular fibrillation with symptoms similar in every way to those of Class 1, but in whom, though the pulse is slow in rate (a bradycardia of 30 to 40 per minute, or a normal rate of 60–70 or 80 per minute), no improvement follows any form of treatment; their course is progressively downwards. The slow rate may be the result of digitalis therapy, or it may occur independently of drugs—i.e., the nodal bradycardia of Sir James Mackenzie. The characteristic feature of these cases is that although the pulse-rate is within normal limits or abnormally slow (bradycardia), the dyspnoea, dropsy, and cyanosis persist and gradually increase, in spite of all treatment. The prognosis is hopeless. The myocardium is worn out. Here auricular fibrillation is not the cause of cardiac failure, but an accidental concomitant, or possibly a result of that failure, a means of setting free the worn-out ventricle from the control of the pace-maker. There is no question of restoring sinus rhythm by means of quinidine; even if the rhythm were restored, the patient would be no better off. The rule is for auricular fibrillation to be accompanied by a rapid pulse-rate of 140–150 per minute; as Sir Thomas Lewis has pointed out, the pulse tends to double its rate. Where auricular fibrillation coexists with a pulse of normal or subnormal rate (bradycardia) the explanation is probably that the myocardial degeneration responsible for the altered rhythm is also responsible for affecting some of the junctional fibres between auricle and ventricle; in other words, degeneration of the myocardium has caused a certain degree of auriculo-ventricular heart-block. What degenerative changes have effected in the course of months or years in Class 3, digitalis can effect in the course of hours or days in Class 1.

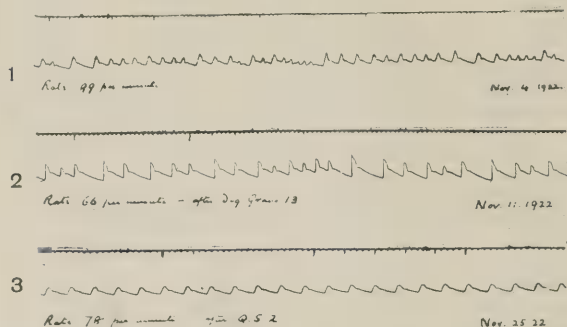
¹ Parkinson and Nicholl: THE LANCET, 1922, ii., 1267.

Treatment of Auricular Fibrillation.

A great deal of harm will accrue to sufferers from auricular fibrillation if the value of digitalis is lost sight of in the quest of new drugs like quinidine. Digitalis has a specific action on auricular fibrillation and cannot be replaced. It is difficult to say whether in the order of nature digitalis or auricular fibrillation was first evolved, but it is highly probable that digitalis would never have been recognised as a potent drug for the removal of dropsy had not auricular fibrillation been the cause of the dropsy. Quinidine may supplement digitalis, but will never supplant it. The two drugs have different functions and must be used accordingly. The indication for digitalis in cases of cardiac failure is auricular fibrillation with a ventricular rate above normal. If given in sufficient amount, digitalis will not fail to lower the rate from 150-160 per minute to a rate of 60-70-80 per minute, and with this drop in the pulse-rate, in practically all cases, the dyspnoea, dropsy, and cyanosis, &c., will gradually improve. In a very small percentage of cases (Class 3) no improvement follows.

Digitalis appears to act on the junctional fibres between auricle and ventricle, for the electro-cardiograph shows that the fibrillations of the auricle are undisturbed though the ventricular rate is lowered. The Class 1 patient having been brought into Class 2—i.e., so far restored as to be able to walk a short distance on the level—is now, and not till now, ready for quinidine administration; the latter can convert the abnormal rhythm to the normal sinus rhythm. Digitalis, however much it may improve the patient's condition, will not produce this result (Figs. 1 and 2).

FIG. 1.



Sphygmograph of a male aged 62. Myocardial degeneration with auricular fibrillation. 1. Before treatment: rate 99, rhythm irregular. 2. After digitalis: rate 66, rhythm irregular. 3. After quinidine: rate 78, rhythm regular.

On the other hand, quinidine sulphate must not be used to restore cases with cardiac failure, this is the rôle of digitalis; quinidine will only restore rhythm. But if there are no symptoms of cardiac failure, why give quinidine or any other drug? Because the patient is better with a normal rhythm than with auricular fibrillation, for the cardiac efficiency is greater. It is not easy to give scientific proof of such a statement, but there are cogent reasons for believing it to be true, and personally I have no doubt about it.

Statements of Patients.

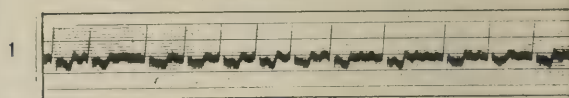
(1) Patients state that they are more comfortable, feel better, and can do more after restoration of the sinus rhythm.

CASE 3.—A married woman, aged 46, had symptoms of breathlessness on exertion and a winter cough since childhood. She had a large heart, obscured by an emphysematous lung. Transverse diameter 7 inches. No evidence of valvular disease. She had had three attacks of rheumatic fever, at 12, 25, and 33 years of age. Her cardiac inefficiency was not great, for, in addition to her housework, she was able to work regularly during the war "on shells." In September, 1920, she caught cold and had "a dry cough which pulled her to pieces," and probably at this time auricular fibrillation occurred, for she then became invalided. She was admitted to Queen's Hospital three times

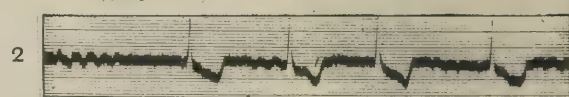
between December, 1920, and December, 1921, with marked cyanosis, dropsy, and auricular fibrillation with rapid pulse. Each time she left hospital freed from all distressing symptoms after a course of digitalis, but on each occasion the improvement was temporary. On Jan. 6th, 1922, she was admitted for a fourth time, again cyanosed and oedematous, and with the irregular pulse of auricular fibrillation, which varied in rate from 120 to 170 per minute.

FIG. 2.

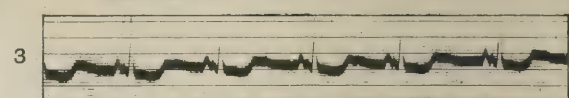
Before Treatment
Rate 132 per minute



Aft. Digitalis
Rate 52 per minute



Aft. Quinidine Sulphate
Rate 60 per minute



Electro-cardiograms of female, aged 28, with mitral stenosis of rheumatic origin, and auricular fibrillation. 1. Before treatment. 2. After digitalis. 3. After quinidine.

Note.—Although digitalis has slowed the ventricle from 132 to 52 beats per minute, fibrillation of the auricle is still present. After quinidine, sinus rhythm is restored.

The pulse was brought down to 70-80 per minute by digitalis, and on the 10th, after 54 gr. of quinidine administered in nine doses in 16 hours, sinus rhythm was restored. Three weeks later she left hospital, and remained well and in active work until Jan. 31st, 1923, when auricular fibrillation recurred, but only after an interval of 12 months. This time sinus rhythm was re-established after five doses of quinidine taken in two days.

In this case the value of quinidine is evident, for during the year 1921 the patient was in and out of hospital three times and more or less of an invalid when at home. During the year 1922, after restoration of the sinus rhythm, she led the active life of a housewife, and was not taking any drugs.

(2) Patients successfully treated with quinidine, in whom auricular fibrillation has recurred, return to hospital for a further course of quinidine. In some cases patients themselves treat recurrent attacks successfully at home, having learnt the details of treatment in hospital.

(3) The volume of the pulse is greater with a sinus rhythm than when auricular fibrillation is present. Sphygmographic tracings show a conspicuous difference between the small volume of the pulse tracings of auricular fibrillation and that of sinus rhythm. In taking pulse tracings before and after quinidine administration it is often difficult to obtain a satisfactory tracing during the stage of auricular fibrillation, but this becomes quite easy when sinus rhythm is established; this change in volume of the pulse is well appreciated by the nursing staff in charge of my cases at Queen's Hospital. They know when the pulse becomes regular in a doubtful case, rather by the increased volume than by actual regularity of rhythm, for when sinus rhythm has been restored its regularity is not uncommonly obscured by occasional extrasystoles. This increase in volume has a practical bearing on the watching of cases under quinidine treatment; in many cases during the passage from auricular fibrillation to sinus rhythm there is a period in which auricular flutter replaces auricular fibrillation, and when this occurs the pulse is generally regular, albeit often rapid.

This increase in the volume of the pulse is due to restoration of function of the auricle. During

fibrillation the auricle is virtually paralysed, during sinus rhythm its coördinate contraction helps in the final stage of the filling of the ventricle. Hence in sinus rhythm the ventricle is better filled with blood than in auricular fibrillation. Possibly another factor in this increase of volume is that in auricular fibrillation all the ventricular fibres do not participate in every ventricular contraction, while in sinus rhythm they do. As Sir James Mackenzie has pointed out, when the stimulus arises in the muscle fibres of the auricle instead of in the sino-auricular node, the ventricular systole is often partial and ineffective, and so the volume of the pulse is small.

(4) The greatest gain to the patient when auricular fibrillation is restored to sinus rhythm is stability of the pulse. In auricular fibrillation a walk of 50 yards on the level may increase the pulse-rate by 20 to 50 beats per minute, whereas with sinus rhythm the same amount of exercise will not increase the same patient's pulse-rate at all.

The accompanying chart (Fig. 3) shows the pulse of a female, aged 20, suffering from mitral stenosis of rheumatic origin, and illustrates the instability of the pulse when auricular fibrillation is present, A—F, compared with the stability of the pulse when sinus

must be given in full doses, much greater than those frequently adopted.

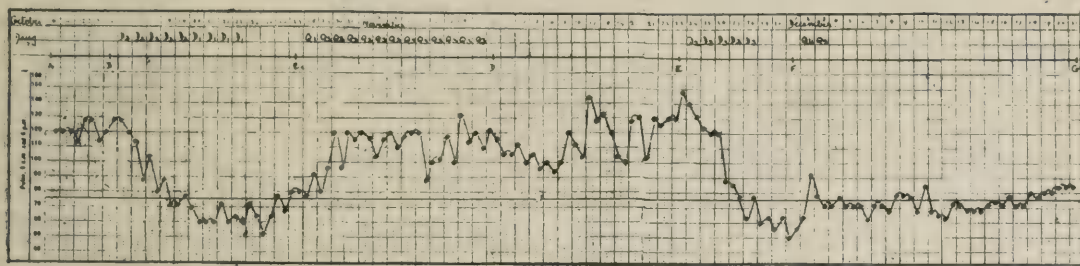
The Limitations of Quinidine.

(1) Quinidine must be regarded as a drug merely for altering an abnormal rhythm, and not for treating symptoms of cardiac failure.

(2) While quinidine is capable of restoring sinus rhythm in a case of auricular fibrillation, it will not prevent its recurrence. Its utility in a given case, therefore, entirely depends upon the liability for auricular fibrillation to recur; this liability cannot at present be estimated, for the exciting cause of auricular fibrillation is unknown, as is that of the occasional extrasystole giving rise to the so-called intermittent pulse.

The predisposing cause of fibrillation is well recognised as some degenerative change in the muscular fibres of the auricle; but there must be some immediate excitant which conceivably reaches the auricle through the nervous system, for its action is instantaneous. This indeterminate excitant factor constitutes one of the limitations of quinidine, for while this drug can restore sinus rhythm, it cannot prevent the recurrence of fibrillation.

FIG. 3.



A—B=Pulse-rate on admission. B—C=Fall of pulse-rate under digitalis. C—D=Rise of pulse-rate under unsuccessful course of quinidine. D—E=Rapid and variable pulse, all drugs omitted. E—F=Fall of pulse-rate under digitalis. F—G=Sinus rhythm restored by a two days' course of quinidine and immediately followed by a steady pulse-rate, although patient was taking no drugs and was walking about. A—F=Auricular fibrillation present, and patient was confined to bed. At B and again at E administration commenced of tabloids of digitalin (cryst.) 1/250 gr.; at C and again at F, doses of quinidine sulphate, 6 gr.

rhythm is present, F—G. The chart covers a period of 10½ weeks.

In September, 1921, I began treating cases of auricular fibrillation with quinidine sulphate. Since this date I have treated 30 cases, and have failed to restore sinus rhythm in two; if only suitable cases be selected, I believe that quinidine will *always* restore the sinus rhythm. I account for the two failures by having included what I now consider to be two cases unsuitable for treatment.

Selection of Cases.

In selecting cases for quinidine therapy, I have based my selection entirely on the response of the patient to digitalis. Given a case suffering from cardiac failure with auricular fibrillation, the patient is treated in the routine manner by rest and digitalis, with purgatives and blood-letting if necessary. If—as in the vast majority of cases—the patient responds well to treatment, we may deduce that auricular fibrillation is the cause of the cardiac failure; in these cases quinidine should be used, for if we can change the rhythm we cure the heart failure. If, however, there is no satisfactory improvement in the patient's state, in spite of the lowering of the ventricular rate to within normal limits, then cardiac failure is due not to auricular fibrillation, but to a worn-out heart muscle. This only occurs in a small number of cases, and in these quinidine should not be used. The restoration of sinus rhythm is not called for—it may even be prejudicial. Before assuming, however, that a case of auricular fibrillation will not respond to digitalis, the drug

Cases vary greatly in the length of time that sinus rhythm is maintained after quinidine therapy. In some of my cases rhythm has remained regular, and cardiac efficiency at a relatively high level, for 12 months and over; but other cases have relapsed while still in hospital, in the course of a few days. I now make a practice of restoring such cases three or four times; if a further relapse occurs I recommend the patient to make himself familiar with the use of digitalis, on which he may have to depend for the rest of his life, taking the drug as occasion demands.

Dangers of the Drug.

I have had no fatalities. Minor symptoms, such as headache, nausea, vomiting, giddiness, are not infrequently complained of. Serious symptoms appeared in three cases: in one a temporary hemiplegia, possibly the result of embolism; in another epileptiform attacks at noon, 5.30 P.M., and 7 P.M. on the same day; in a third an epileptiform seizure occurred with cessation of respiration and failure of the pulse. The patient was restored by artificial respiration. A second less severe seizure occurred three hours later on the same day. All three patients completely recovered and were none the worse 24 hours afterwards. In the first two cases these alarming symptoms occurred whilst the auricle was fibrillating, but in the third case sinus rhythm had already been established for 22 hours.

All had been treated with small doses of the drug; in no cases where large doses (48 or even 60 gr. per day) had been given were there any serious symptoms.

Dosage.

I have found no reason for departing from the original dose recommended by Frey—viz., 0.4 g. (approximately 6 gr.). It is given in capsules by the mouth. With regard to frequency of dosage, after trying many variations, I have been led to regard the following as the safest and most successful. One dose is given the first day, two the second, three the third, and so on till a maximum of ten doses may be reached. This large number, however, is rarely necessary, the majority of the cases being restored on the second, third, or fourth day. The dose is repeated every two hours, and I find it convenient at hospital to give the initial dose at 5 A.M., so that on the fourth day of administration, for example, the patient has a capsule at 5, 7, 9, and 11 A.M.

The pulse is recorded hourly, and if necessary the nurse is instructed to estimate the ventricular rate from the apex beat. She records not only the rate, but also the rhythm, adding the word "regular" or "irregular" to the pulse chart. The quinidine is discontinued as soon as a regular rhythm is noted, and the patient, who has been kept in bed during the administration of the drug, is allowed up on the following day. Electro-cardiograms are taken as controls as often as may be found necessary. No rhythm is accepted as sinus rhythm without confirmation by the electro-cardiograph. I have found no advantage in persevering with small doses of quinidine after sinus rhythm has once been established.

A point of importance is that the intervals between successive doses of quinidine should be short, for quinidine seems to be rapidly eliminated. I have succeeded with small quantities of the drug given at two-hourly intervals in cases unaffected by much larger quantities given at six or even four-hourly intervals. I have found it undesirable to give digitalis and quinidine at the same time. The secret of success depends, in my opinion, on not being in a hurry to give quinidine. Rest in bed and digitalis must first bring about such improvement in the degree of heart failure that no further benefit can be obtained from digitalis. As a rule, the patient will be able to walk for half an hour on the level without discomfort. When this stage has been reached, two or three days should be allowed to elapse without digitalis, and then a course of quinidine may be commenced.

In conclusion, I may state that for the treatment of cardiac failure with auricular fibrillation, digitalis is a specific remedy and quinidine an invaluable coadjutor.

BOGNOR WAR MEMORIAL HOSPITAL.—The premises in Chichester-road, Bognor, which thanks to the generosity of Mr. James Fleming, of Aldwick Grange, were opened for patients in July, 1919, and were adopted by the town as the war memorial, have already outgrown the demands made upon them. At the annual meeting on May 14th an extension fund was opened with the object of making provision for the erection of new buildings which would be more suitable for the purposes of a hospital and which would contain accommodation for paying patients. In-patients during the year ended March 31st numbered 148, and out-patients 1819. The income was £1750 8s. 10d., and the expenditure £1444 16s. 6½d., showing an excess of income over expenditure of £305 12s. 3½d.

CONTROL OF VENEREAL DISEASES: RESOLUTIONS OF THE SCOTTISH COMMITTEE.—The May issue of *Health and Empire* has printed an account of the conference held at Glasgow on March 8th, when representatives of local authorities met members of the Scottish Committee of the National Council for Combating Venereal Diseases. Three important resolutions were passed at this meeting:—

That in the opinion of this conference the present law and machinery are inadequate to secure the proper control and treatment of venereal diseases.

That in order to secure adequate control of venereal diseases (both acquired and congenital) it is essential that a system of notification should be introduced.

That it is essential every person suffering from V.D. should be required by law to place himself or herself under treatment by a qualified medical practitioner and to continue under such treatment until pronounced free of infection.

Of these resolutions the first and second were carried unanimously and the third with two dissentients.

NOTES ON

ONE HUNDRED HUMAN FŒTUSES.

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FOR the past four years we have been engaged in an investigation of the stillborn human foetus, one of us (M. F. L. K.) concentrating upon the relations between certain foetal abnormalities and the ductless glands, and the other (E. E. H.) upon the possible part played by the ductless glands in stillbirth. Full analyses of our cases (already about 250 in number) are not yet available, but we were much interested to note that Eardley Holland¹ has found that in 167 fresh (non-macerated) foetuses of viable age, 81—i.e., 48 per cent.—had sustained tears of the tentorium cerebelli. This observation differs so widely from our own findings that the latter seem definitely worth recording.

1. Tentorial Tears and Subdural Hæmorrhage.

For the purpose of this report we have taken, without any selection, the last 100 fresh foetuses of viable age received, and divided them into full-time (67) and premature (33) births. With regard to tears of the falx cerebri, it is not uncommon to find fenestrations of this fold of dura mater in dissecting-room subjects; possibly these were actually produced at birth. We found that the dural folds varied very much with regard to fragility in different foetuses, the greatest care being necessary in some cases in examination of this region; but in one case (not included in the 100 under discussion) there had been considerable subdural hæmorrhage, probably from the vein of Galen, yet the dura mater was intact, and further, it was found that the foetus, weighing 6½ lb., could be suspended for a short time by its falx cerebri without any tears appearing. We ourselves have carried out almost every post-mortem examination and tedious as this method may be, and cramping as regards the amount of material that can be dealt with, we feel that it has its merits in that the personal factor in observation is eliminated.

(a) *Full-time Foetuses.*—Of these 67 foetuses, only five—i.e., 7.5 per cent.—showed tentorial tears, and three of these were accompanied by subdural hæmorrhage; in addition, seven had subdural hæmorrhage without any evidence of tentorial tears. Table I, giving the detailed analysis of these 12 cases, brings out the following interesting points: (1) Six of the mothers were primiparæ, having an average age of 31.3, the average age of the 12 mothers is 32.4 (2) seven of the 12 cases were district cases, five of these being spontaneous deliveries; (3) seven foetuses were female, five male.

Taking the history of labour, which would be expected to have some relation to the incidence of tears and hæmorrhages, the following classification is found:—

Spontaneous (6 cases).	1 Tentorial tear and hæmorrhage (f.).
	1 Tentorial tear only (m.).
	4 Hæmorrhage only (2 m.).
Instrumental or manipulation (6 cases).	2 Tentorial tear and hæmorrhage (1 m.).
	1 Tentorial tear only (f.).
	3 Hæmorrhage only (1 m.).

(b) *Premature Foetuses.*—Of these 33 foetuses, three—i.e., 9 per cent.—showed tentorial tears accompanied by subdural hæmorrhage, and in addition four had subdural hæmorrhage without any tears.

Table II. gives the further analysis of these seven cases, and brings out the following points: (1) Three

¹ Report No. 7, Ministry of Health, on Causation of Foetal Death.

TABLE I.—FULL-TIME (F.T.) FŒTUSES.

No.	Sex.	Source.	No. of preg-nancy.	Age of mother.	Labour.	Tentorial tears.	Subdural hæmorrhage.	Condition of fœtus.	Estimated maturity.
1046	F.	D.	6	30	Breech, prolapsed cord.	—	+	Dead.	F.T.
1049	M.	D.	1	31	Prolapsed cord.	+	—	"	"
1054	F.	R.F.H.	5	32	Prolonged spontaneous.	+	+	"	"
1055	F.	D.	11	35	Forceps delivery.	+	—	"	"
1059	M.	D.	1	26	Normal.	—	+	"	"
1061	F.	E.S.	1	33	Version, forceps.	—	+	"	"
2091	F.	E.S.	M.	37	Accidental hæmorrhage, forceps.	—	+	"	"
2092	F.	D.	4	40	Born before arrival.	—	+	"	"
2125	F.	D.	1	38	Impacted shoulder, forceps.	+	+	Dead.	"
2126	M.	R.F.H.	1	36	Delay, P.P.H., forceps.	+	+	"	"
2144	M.	E.S.	1	24	Forceps delivery.	—	+	Lived 10 min.	"
2150	M.	D.	2	27	Prolapsed cord, R.O.P.	—	+	Dead.	"

TABLE II.—PREMATURE FŒTUSES.

No.	Sex.	Source.	No. of preg-nancy.	Age of mother.	Labour.	Tentorial tears.	Subdural hæmorrhage.	Condition of fœtus.	Estimated maturity.
1051	F.	E.S.	3	30	Cæsarean.	—	+	Lived few min.	Weeks. 36
2070	F.	E.S.	2	27	Placenta prævia, transverse presentation.	—	+	Dead.	36
2109	F.	E.S.	1	29	Normal.	—	+	Lived 1 day.	36
2149	M.	R.F.H.	M.	27	Induced, posterior position.	—	+	Dead.	38
2151	F.	P.	6	29	Placenta prævia, leg brought down.	+	+	"	38
2152	F.	E.S.	1	36	Breech, spontaneous (hydrocephalus, spina bifida).	+	+	"	38 +
2155	F.	E.S.	1	21	Placenta prævia, leg brought down.	+	+	Lived 2 hrs.	31

D. = district; R.F.H. = Royal Free Hospital; E.S. = Endsleigh-street; P. = private.
M. = multipara; P.P.H. = post-partum hæmorrhage; R.O.P. = right occipito-posterior.

of the mothers were primiparæ, with an average age of 28.2 years; (2) six cases were from hospital sources, and one private; (3) Six fœtuses were female, one male.

The history of labour, classified as for the full-time fœtuses, is as follows:—

Spontaneous (2 cases).	1 Tentorial tear and hæmorrhage (hydrocephalus, f.).
	1 Hæmorrhage only (f.).
Manipulation (5 cases).	2 Tentorial tear and hæmorrhage (f.).
	3 Hæmorrhage only, one slight (1 m.).

2. Further Observations.

(a) *On the 67 Full-time Fœtuses.*—We thought it interesting to note the number of fœtuses delivered by forceps or by manipulation which did not show either tentorial tears or subdural hæmorrhage. Of the 67 fœtuses, these numbered 21—i.e., 31.3 per cent.; 16 of the 21 mothers were in-patients, 11 cases being first pregnancies. The average age of the mothers was 31.1 years; 18 of the 21 fœtuses were male. From the histories these were all cases of difficult labour, mostly treated in hospital; the fact that they show neither tentorial tears nor hæmorrhages is significant, especially when compared with the six cases (five of them from "district") of spontaneous delivery which did show such lesions. The total number of non-spontaneous deliveries among these 67 cases is 31; the 21 cases without tears or hæmorrhages just quoted, the six cases with tears or hæmorrhage, and four craniotomy cases.

(b) *On the 100 Cases.*—With regard to sex, although among these 100 fœtuses the males were not very greatly in excess of the females (58 male, 42 female), yet we found 23 males and 16 females among the 39 non-spontaneous deliveries.

Non-Spontaneous Deliveries.

	Male.	Female.	Total.
Full time ..	20 + 1 C.	7 + 3 C.	31
Premature ..	2	6	8

C. = craniotomy.

With regard to source, the 100 cases were obtained as follows:—

Gynæcological and Obstetrical Unit—	
(a) Royal Free Hospital ..	25
(b) Endsleigh-street ..	32
(c) District ..	24
Lambeth Infirmary ..	14
Thames Inn Hospital ..	4
Private ..	1

Seventy-five of the cases, therefore, were hospital in-patients.

Summary.

Taking the full-time and premature fœtuses together, we obtain the following figures:—

	Percentage.
1. Tentorial tears with subdural hæmorrhage ..	6
2. Tentorial tears alone ..	2
(i.e., tentorial tears, 8 per cent.)	
3. Subdural hæmorrhage only ..	11

These figures are strikingly lower than those obtained by Eardley Holland; we think it probable that neither figure represents the true average, and that this discrepancy is due at least in part to the fact that a sufficient number of cases has not yet been published. No doubt the actual treatment that the patient receives is a factor to be taken into account, and for this reason we have given above the sources of our 100 cases. In this connexion we note that of the 19 cases showing tear or hæmorrhage or both, seven were derived from "district," and five of these were full-time spontaneous deliveries.

It is also interesting to note that 9 (47 per cent.) of the mothers were primiparæ, and, further, that the average age of the mother was unusually high; from the figures we have quoted it appears that the first child of a mother of this class who is already about 30 years old fares badly. In our opinion, among these cases showing tentorial tears and subdural hæmorrhages death could be definitely ascribed to these lesions in one fœtus only, a case of hydrocephalus, which in addition showed extensive tears of the falx cerebri.

We would like to express our grateful thanks to Lady Barrett and to Prof. Louise McIlroy, who have supplied us with 75 of the 100 cases used in this report, and have also been extremely helpful in arranging that full histories are sent with the material. We also wish to thank Dr. A. L. Baly and Dr. J. W. Adams for the remaining fœtuses.

One of us (E. E. H.) is receiving a small grant from the Medical Research Council for research in antenatal pathology.

CROWBOROUGH COTTAGE HOSPITAL.—At the annual meeting on May 16th it was stated that additional rooms for the accommodation of the nursing staff are urgently needed and the committee recommend a special appeal for donations for this purpose. Mr. E. Maude, J.P., said there were certain sums in hand which could be made available for building purposes, but if they spent their invested capital they lost income. The governors, therefore, appeal earnestly for special donations. The balance-sheet showed that the receipts during the year amounted to £1293 11s. 10d., the expenditure showing a balance on the year of £38 14s. 7d.

Clinical and Laboratory Notes.

A CASE OF RECURRENT SUPPURATIVE FRONTAL SINUS DISEASE.¹

By E. WATSON-WILLIAMS, M.C., M.Ch. Camb.,
F.R.C.S. Edin.,

REGISTRAR, THROAT, NOSE, AND EAR DEPARTMENT, BRISTOL ROYAL
INFIRMARY; SURGEON FOR DISEASES OF EAR, NOSE,
AND THROAT, MINISTRY OF PENSIONS HOSPITAL,
BATH, AND SOUTHEAD HOSPITAL, BRISTOL.

THE following case is of interest, the patient recovering after a radical operation:—

A clerk, aged 26, in 1921, at Manchester, had the left frontal sinus operated on externally, with removal of front wall of sinus and superior margin of orbit. He had been attending the out-patient aural clinic for some months with slight nasal discharge and occasional headache. By anterior rhinoscopy very little was to be seen beyond a generally soppy condition high up on the left side. Symptoms were not troublesome. On Feb. 27th, 1922, after being in bed for some days with influenza, he had a great "feeling of fullness in the head." This became worse. On March 1st he came to the out-patient clinic very ill, with temperature 102° F., much pain, and an oedematous patch over the left eye 3 inches each way—a regular "puffy tumour." He was sent into hospital that night; the swelling was incised along the scar, but no pus was found. Next day the temperature was down, but the swelling extended from the hair margin on the left temple to the right outer angle of the orbit, rather more on right than on left, up to the hair line and down to orbital margins and bridge of nose. Mental condition was clear, a little slow.

Operation.—Ether was given and I operated. An incision was made from a point midway between the inner canthus of left eye and bridge of nose, along the lower edge of the eyebrow to outer angle; a second across the "spectacle line" of the nose. The flap of skin and scar tissue was turned up, and the frontal bone freely exposed. Creamy pus was found in four situations: (1) around the infundibulum; (2) in a small pit in the centre of what had been the posterior wall of the frontal sinus (the anterior wall had been previously removed); (3) in a high pocket, practically in centre of forehead—through this, infection appeared to be spreading to the right sinus; (4) in a deep lateral pocket, running directly back from external margin of sinus to a depth of 1 inch. Although the floor of the sinus had been previously removed, this pocket had a bony floor—i.e., it was in the sinus, not in the orbit. It was necessary to remove bone anteriorly in order to approach this. The whole of the sinus was cleaned out very carefully, the bone being lightly gouged in one or two suspicious places till healthy bone only was left. The floor of the "pocket" (4) was removed. The operation was then continued on right side, where infection had begun (see above) but was not general. A similar deep pocket was found at the external angle. The orbital margin was removed, also the inter-sinus crest and glabella, and the floor of the right sinus was taken away. The anterior ethmoidal cells on both sides were curetted out, a free opening into the nose being obtained. The whole of the exposed bone was rubbed with "bipp," excess being removed, and the wound closed; a small drain was left in above the inner canthus on either side.

Progress of Case.—His condition later was good. The temperature rose the next evening and the next to 100° F., but subsequently the course was afebrile. Healing was by first intention practically throughout the wound—a little oozing at the drains for a few days ceasing without trouble. Convalescence was rather protracted, and it was nearly six months before he returned to work. The condition now, a year after operation, is very good. There is no nasal discharge and no pain, except some aching in bad weather. The cosmetic result is fair—distinctly better than before. An interesting feature is the fact that diplopia, formerly so bad that he had spectacles with one eye obscured, is now only noticed for distant vision; for reading and up to about 10 yards, he has binocular vision.

The point of special interest in this case is the prolongation backwards at the outer angles of both sinuses; the use of "bipp" in the manner indicated gave a very satisfactory result.

¹ A case shown at a meeting of the B.M.A., Bristol Branch, January, 1923.

A NOTE ON DIRECT AND INDIRECT INGUINAL HERNIA ON THE SAME SIDE.

By HENRY GRIFFITHS, F.R.C.S. Edin.,
MEDICAL OFFICER, BASUTOLAND, SOUTH AFRICA.

THIS account of a case of direct and indirect inguinal hernia on the same side, which came under my care in June, 1921, appears to be similar to the case recorded by Dr. H. E. S. Stiven in THE LANCET of Oct. 7th, 1922.

The patient, an asthmatic European male, aged 56, consulted me in June, 1921, about attacks of pain in the region of the right groin, associated with vomiting. He had had several attacks, and suggested appendicitis as the cause. He stated that rest in the recumbent position usually relieved him in a few hours.

Examination revealed an "aldermanic" abdomen with a hard lump the size of a pigeon's egg situated just external to and slightly above the external ring. The man informed me that the pain when present seemed to be centred around this "lump" but that the lump had been present for years and had never previously troubled him in any way. I concluded that the swelling was an irreducible epiplocele and that the "attacks" were due to sudden increase in the contents of the sac. I advised him, in view of his general condition, that a truss would probably prevent any further trouble if he could stand its pressure over the lump. While waiting for the truss, and ignoring my advice, he proceeded one day to mount his horse, and was immediately seized with the same pain and vomited once. He went to bed immediately and took two morphia pills. I was called to see him some three hours afterwards and found him "much better." The lump was now slightly tender, but in view of the morphia taken I saw him again three hours later, ordering an enema to be given in the meantime. This produced a good result and I felt satisfied from his general condition that the new protrusion had returned inside the abdomen. The truss arrived shortly afterwards, but he could not wear it because of the pain produced in the "lump" by its pressure. He now begged to have the condition dealt with radically.

I operated a few days later. The "lump" proved to be a very old direct sac with a deep deposit of fat on its external surface; its neck was very rigid and it was empty. I excised the sac in the ordinary way and sutured its mouth. Further exploration of the cord now revealed to my surprise another very thin sac three-quarters of an inch in length coming out through the internal ring. This was also dealt with in the usual way. A satisfactory repair of the canal was impossible owing to the atrophy of the muscles, the conjoined tendon being practically non-existent, and I did not think the patient's age justified transplantation of fascia or any other procedure, feeling that a light truss would probably control any further tendency to bulge. He has been quite well since operation.

The case is, perhaps, most interesting from a diagnostic point of view. The presence of the indirect sac, the actual cause of his trouble, was quite unsuspected by me.

LEUKÆMIA IN THE MONKEY.

NOTE ON A SYNDROME IN A MONKEY (CYNOCEPHALUS SPHINX) SIMILAR TO THAT OF CHRONIC LYMPHATIC LEUKÆMIA IN MAN.

By ALDO C. MASSAGLIA, M.D.,
PROFESSOR OF PATHOLOGY AT THE STATE UNIVERSITY OF
NORTH DAKOTA.

IN the course of a series of attempts to transplant leukæmia, Banti's disease, or other diseases of unknown origin into the monkey, by means of transfusion of the blood or inoculation of an emulsion of some hæmatopoietic organs of patients suffering with these diseases, I found a syndrome which I believe is worth relating.

A monkey (*Cynocephalus sphinx*), age not exactly known, weighing 4400 g., remained under observation during November and December, 1922. Repeated examinations gave the following data: Anima apparently in good health; lymph-nodes, especially of inguinal region, very much swollen, firm, but not painful; spleen palpable, showing some tenderness

Blood examination (average of six examinations performed at different times) gave the following findings: Red cells, 4,000,000 per c.mm.; hæmoglobin, 55 per cent.; leucocytes, 36,000 per c.mm. Red cells appeared in good condition; very few normoblasts were found. The differential count of leucocytes showed: lymphocytes, 65 per cent.; large mononuclears and transitional forms, 17 per cent.; polymorphonuclear neutrophils, 18 per cent.

The monkey's apparent good health, the considerable enlargement of lymph-nodes, accompanied by slight enlargement of the spleen, the changes in the normal constitution of the blood—moderate diminution of red cells, with a diminution of the hæmoglobin proportionately more marked, leucocytosis due chiefly to an increase of the lymphocytes of the small type—all these data correspond to those which, in man, characterise the disease "chronic lymphatic leukaemia."

In horses, cattle, dogs, swine, and cats cases of leukaemia have been noted (Kitt¹), but I believe that this is the first case found in a monkey. And probably in the near future, if observations are made more frequently in animals which have the same, or almost the same, composition of the blood as man, we shall find in them several of those diseases which have been hitherto considered limited almost entirely to man.

A CASE OF

ACUTE POLIOENCEPHALITIS IN INFANCY, ASSOCIATED WITH GLYCOSURIA.

By T. PEARSE WILLIAMS, M.D., M.R.C.P. LOND.,
PHYSICIAN TO OUT-PATIENTS, PADDINGTON GREEN
CHILDREN'S HOSPITAL, LONDON.

THE following case is of sufficient interest to merit record:—

The patient, a male aged 2½ years, was first attended as an out-patient in June, 1921, when suffering from cough and loss of weight. Sugar and acetone were found in the urine. He was admitted to hospital, and beyond occasional vomiting and an evening rise of temperature to 100° F., no other abnormal signs were present. The weight was 24 lb., and sugar was still present in the urine. Improvement commenced ten days after admission, and after another ten days 25 g. of glucose were given by mouth, without the production of glycosuria. He was discharged from hospital shortly afterwards, no cause having been found for his original glycosuria.

Five weeks later he was again brought to the out-patient department with a history of vomiting, thirst, lassitude, and loss of weight; he was readmitted. Much sugar and acetone were present in the urine, the daily amount of which averaged 20 oz. Weight 26 lb. 10 oz., evening temperature 101° to 103° F. He was placed on a diet containing a very small amount of carbohydrates, and alkalies were administered. Investigation of the blood-sugar showed no abnormal increase.

Ten days after admission weakness and spasticity of the left arm developed, followed rapidly by weakness of the left facial muscles and loss of power with wasting of the left leg. The elbow and knee were flexed and the limbs were not used. Later paralysis of the left external rectus developed. The deep reflexes on the left side were absent and the plantar response extensor. Wasting of the muscles occurred. The weight fell to 22 lb.

Improvement was noticed six weeks after admission, and continued steadily, the diet was increased and weight was gained. A further test of tolerance to sugar was performed, and no sugar appeared in the urine. The facial palsy and squint disappeared, and after massage had been given to the limbs voluntary movement was regained. No glycosuria has occurred since recovery, and except for a mild degree of talipes equino-varus with ¼ in. of shortening of the left leg, associated with some weakness, the child is quite well.

I have classified this case as one of polioencephalitis, although there was absence of spasticity in the lower limbs and a residual deformity with some muscular wasting and weakness. There was no evidence either of pancreatic insufficiency or hyperglycaemia.

¹ Kitt: *Manuale di Anatomia Patologica degli Animali Domestici*, Traduzione di A. Baldoni, vol. ii., 381; Milan: Vallardi.

Medical Societies.

THE MEDICO-LEGAL SOCIETY.

THE MENTAL TREATMENT BILL.

A MEETING of this Society was held on May 15th, Dr. M. A. COLLINS presiding.

Mr. A. H. TREVOR, Commissioner of the Board of Control, read a paper on the Mental Treatments Bill. He said there was practical unanimity in favour of the relaxation of the stringency of the Lunacy Laws, to enable early cases, whether certifiable or not, to be accepted for treatment without certification, and to extend the system of voluntary boarders to all classes. Mr. Trevor selected various clauses in the Bill for explanatory comment, showing first the importance of the extension of the powers of visiting committees. A reduction of the full strength of paid Commissioners from 12 to eight and the delegation of certain duties to inspectors was an economic measure which should receive wide support. Further points of importance were that a patient who regained volition, after having had none, could discharge himself at 48 hours' notice, and that the cost of the keep and treatment of incipient cases would be debited to the General Fund, removing all pauper taint. The Bill dealt only with those willing to be treated, or those who were too ill to know what was taking place. Mr. Trevor explained in some detail the reasons influencing the Government towards placing these patients under the Board of Control. Alternatively a duplicate organisation would have to be set up, for cases of incipient insanity required treatment in many ways resembling that suitable for certified patients. In order to look after their interests, a staff would have to be appointed, differing only in personnel from members of the Board of Control. Separation would also imply the creation of new institutions—a financial impossibility. Moreover, the hospital spirit was growing in public asylums, and this spirit would be damaged by the segregation of early presumably curable cases in a separate institution.

Discussion.

The PRESIDENT said that the aim and object of the Bill must be universally approved. Would the machinery set up attain the desired result?

Sir R. ARMSTRONG-JONES gave as an example of the kind of case that would be benefited by the new legislation that of puerperal insanity, when each successive pregnancy was tinged for the mother with the feeling that she had once been a certified lunatic, and might be again. He regretted that uncertified cases were not to be allowed in approved homes, as well as in public institutions. He did not consider that 48 hours' notice of desire to leave was a sufficiently long period for suitable arrangements to be made. The Bill included no provision for the private affairs of the patient whilst in an institution, and insufficient provision for after-care.

Colonel J. R. LORD was not clear whether visiting committees were to be empowered to combine to provide additional hospitals, like the Maudesley, sanatoria for the treatment of tuberculosis in the insane, and adequate after-care. In New York State certain patients were allowed to resume home life, provided they were visited once a week by specially appointed visitors. These were known as "parole patients," and were also given vocational training. The patient did not leave the books of the hospital until he was fit to look after himself, and until his home conditions were judged suitable. Perhaps some amendment of the Lunacy Act would be framed to achieve this benefit for patients in this country. Provision of after-care should be considered from the economic aspect, lest material help should be given long after the patient had ceased to be insane. The distinction between the voluntary boarders and the

incipient mental cases with volition dealt with in different sections of the Bill seemed arbitrary. According to this Bill every mental hospital might receive voluntary boarders, but only especially approved institutions might receive early incipient cases. Colonel Lord did not consider that every one of our mental hospitals was a proper institution to undertake the care of voluntary boarders. If a patient went as an early incipient mental case, certain formalities were required, but as a voluntary boarder he could go anywhere. If a patient while a voluntary boarder came into a state where volition was lost, he might apparently remain on indefinitely as a voluntary boarder. Thus, when this Bill came into force, the incipient case would have the protection of formal visits from medical men at the end of six months, while a voluntary boarder would not have that advantage. He trusted that the new regulations re inspectors would strengthen, and not weaken, the Board of Control. Colonel Lord considered that, on the whole, the Bill had been admirably framed, but for persons willing and anxious to be admitted into institutions, why so many formalities in recommendation? These were not asked for in the case of a voluntary boarder. He agreed with Sir Robert Armstrong-Jones as to the need for some provision for the care of the patient's property during his stay in an institution. He would recommend the exclusion of voluntary boarders from Section II. and their inclusion under Section IV., so that voluntary boarders and incipient cases would both only go to places approved by the Board of Control.

Dr. M. I. FENUCANE expressed disappointment with the scope and apparent purpose of the Bill, and disapproval of the new machinery set up.

Earl RUSSELL explained that the Bill involved a definite change in policy, extending the available facilities for the treatment of mental disease in two directions—earlier treatment and after-care. Colonel Lord had said in effect that with the new after-care provision, local authorities might maintain neurostenics for life. So they might, but so they probably did now in certain cases under the Poor-law. It was up to electors to choose representatives who would prevent these abuses. The Bill brought no new apparatus. Earl Russell could conceive of nothing more stupid than separation from the Board of Control. The Bill had been well received in the House of Lords. Doubtless through allowing free egress at 48 hours' notice the Bill might in some cases defeat its own object, but the public had great fear of sequestration in asylums, and the Board of Control was doubtless wise in allowing no power to detain patients against their will. He agreed that 48 hours was a short period, but public opinion rightly demanded stringent safeguards for the liberty of the subject. If in practice the working of the Bill was found to be hampered by any of its provisions, these could doubtless be amended later on.

Sir FREDERICK WILLIS, answering Colonel Lord, said that mental hospitals were only to be used for voluntary boarders with the approval of the Board of Control, and this would be refused if any hospitals were considered unsuitable. As to the overlapping between the sections dealing with voluntary boarders and incipient cases, since 1890 private asylums and registered houses might take in voluntary boarders, but not public asylums. It was a widespread desire that this privilege should be available for the poor also. A voluntary boarder was not necessarily an early case, whereas the incipient case it was hoped to bring in under the new Bill was one of early mental disease; places approved for incipient cases would thus have to be especially well equipped. As to power of combination, visiting committees would be empowered to combine for any purpose. The Bill was deliberately drafted to be as elastic as possible.

Dr. J. N. SERGEANT, as a licensee and medical officer of a private asylum, considered that the great value of the Bill was in its brevity. The fact that the faults found in the Bill were mainly those of omission showed that the Bill must be very good.

The PRESIDENT said that the underlying principle of the Bill was to afford to patients suffering from early mental disorders the advantages of patients at a voluntary hospital. For this reason the formalities of recommendation should be reduced to a minimum. One of the most vulnerable clauses in the Bill was perhaps that referring to the non-volition cases, since the state of non-volition was difficult to define.

Reply.

Mr. TREVOR agreed that 48 hours might be rather a short time. In Scotland three days was allowed. As to the approved houses, it might be advisable later to include these, but since these were the only places where any money was made out of the treatment of the insane, it was probably wise not to include them at this stage. As to voluntary boarders, the idea was only to extend to public mental asylums a system which had existed for years in private ones.

ROYAL ACADEMY OF MEDICINE IN IRELAND: THE ROTUNDA HOSPITAL REPORT.

At a recent meeting of the Section of Obstetrics held in the Royal College of Physicians, Dr. BETHEL SOLOMONS, the President, being in the chair, the report of the Master of the Rotunda Hospital for the year November, 1921, to October, 1922, was read and discussed.

Dr. GIBBON FITZGIBBON dealt in his report with 1715 women confined in the hospital, 2022 in the extern department, and 412 patients treated in the gynæcological wards. In the district there were ten deaths, of which five were due to post-partum hæmorrhage; in none of these cases was the patient attended by the hospital until after the birth of the infant, and four of the women were moribund when first seen. He pointed out that the present regulations for midwives did not require this complication to be reported early enough, and that consequently assistance often arrived too late. Eleven cases of placenta prævia were treated in their own homes without a death, all by version. This brings the number in three years to 32 with one death; in the hospital there have been 34 with one death. There was one death from concealed accidental hæmorrhage; in this case the true condition was not recognised until collapse set in, and death occurred before treatment could be adopted. One death was due to cardiac disease with failing compensation during pregnancy. In the intern maternity ward 12 cases of prolapse of the cord were treated and seven infants were delivered alive; one only was extracted with forceps, being in the second stage of labour. Reposition was usually the method adopted and spontaneous delivery awaited. Craniotomy was done in a neglected face case and in a case of posterior sacculation of the uterus following ventral fixation. Only four cases are noted in the report as accidental hæmorrhage; these were the only ones requiring active treatment, many other cases having been admitted and treated by rest, the bleeding stopping spontaneously. Two cases of full-term ectopic pregnancies were treated by laparotomy, and also two cases of rupture of the uterus through scars during pregnancy. As to contracted pelvis, there were 13 cases of marked contraction; 104 patients delivered themselves spontaneously, nine requiring forceps at the end of the second stage. Of the remaining 3 cases, Cæsarean section was required 11 times, six cases being repeated sections. The lower segment operation was done in all the cases operated on for the first time. Pubiotomy was adopted in eight cases as an alternative to craniotomy where there was chance of saving the infant and resulted in four surviving infants, while two others born alive failed to recover. Twenty-eight cases of induction of labour are described in the report. The conditions for which

the procedure was adopted were: severe toxæmia, eclampsia, contracted pelvis, accidental hæmorrhage, and dead fœtus. Dr. FitzGibbon asserts that induction can be carried out with perfect safety and excellent results and offers the most suitable means of dealing with many of the above complications. The methods he adopts are tents where the pregnancy is before the twenty-fourth week and the introduction of a soft rubber tube for more advanced pregnancy. Spontaneous emptying of the uterus is waited for, but where the fœtus has not to be considered, a leg is sometimes brought down after the cervix is dilated to admit two fingers, if the onset of uterine action is slow. The results as regards the child were satisfactory and the maternal convalescence was quite as good as after normal spontaneous deliveries. There were 64 cases of severe albuminuria and 14 of eclampsia without any death. One patient was admitted twice in the year with eclampsia in different pregnancies. The total morbidity in the puerperium (B.M.A. standard) was 6.0 per cent. It was pointed out that this standard includes all cases with a rise of temperature above 100° F. on any two occasions between the second and eighth days, not as is often assumed, two consecutive occasions; this reading of the standard is erroneous. There were two deaths from acute sepsis and only two other cases showed pyogenic uterine infection, one of these being gonococcal. The intern mortality was eight, including cases of cardiac disease, pneumonia, intestinal obstruction by kink, and one case each of abdominal ectopic pregnancy and ruptured uterus.

Discussion.

In the course of the discussion Dr. L. L. CASSIDY congratulated the Master of the Rotunda and his assistants on a report which, he said, maintained the very high standard which the Rotunda had always shown. He disapproved of the high use of forceps. The question as to when labour should be induced in cases of accidental hæmorrhage was a very important one. In cases of long-continued hæmorrhage, he thought that the blood count should be taken, and if the hæmoglobin dropped to 35 per cent., then he was of opinion that labour should be induced. As to contracted pelvis, if every pregnant woman were examined not later than the thirty-second week, more healthy children would be born.

Dr. R. E. TOTTENHAM was satisfied from the report that there was very strong evidence in favour of inducing labour. There were three reasons indicating such a procedure: (1) the pelvis was too small, (2) it did not give as much as a normal pelvis, (3) the baby's head was too big or too hard. He had looked up old Rotunda reports, and it was interesting to note that out of a total of 115 cases where labour had been induced, there had only been four deaths.

Dr. R. J. ROWLETTE noted that there had been two deaths from acute infection; and in neither of these cases had there been a rise of temperature above normal. They were accustomed to see occasionally, in cases of acute surgical sepsis, death occurring without any rise of temperature, but in his experience of the Rotunda Hospital, he did not remember any deaths without rise of temperature. Dr. FitzGibbon had not mentioned what the infection was, but Dr. Rowlette presumed it was streptococcal.

The PRESIDENT said that habitual death of the fœtus was sometimes extremely difficult to combat, and Dr. Solomons felt that in cases where after induction of labour, a baby was either born dead or died within a week, it might be necessary in a subsequent labour to perform Cæsarean section although these cases must be extremely rare. He did not believe that cephalic version was indicated in breech presentation, as the latter was an effort of nature to bring about the easiest method of delivery. The question as to the exact definition of antepartum hæmorrhage for statistical purposes had still to be decided. The original views of the Master of the hospital with regard to pubiotomy were valuable, and he was in accord with them. It was questionable as to whether decapitation of a perforated head

already born made it easier to deliver the body; it seemed better to have the head still attached to the body for traction.

Dr. FITZGIBBON, in replying, said he thought Dr. Cassidy's suggestion of a blood test an excellent basis upon which to decide the question of termination of labour in persistent bleeding in pregnancy; still, when the patients were under observation the progressive anæmia could be well judged, and by the time the hæmoglobin had fallen to the figure suggested the death of the ovum would be usually established as the indication for induction. Dr. Tottenham's figures from previous reports were valuable, but the four deaths even amongst these cases could not be debited to the induction. The operation was done for many serious complications and often as a last resort. Dr. Rowlette referred to the cases of acute infection without a rise of temperature; the infection was streptococcal and the condition was one of collapse setting in from the time of delivery or even before. Dr. FitzGibbon had met other cases with the same collapse reaction from the profundity of the intoxication and the true condition would not have been established without an immediate post-mortem and cultural examination. Version was not advocated for breech presentation, it was done in a case of contracted pelvis in order to estimate the proportions by Müller's method, and in one other case of twins where the first fœtus was presenting as a free breech. The decapitation after delivery of a perforated head was done as the shoulders had to be reduced, the removal of the head enabling the arms to be brought down easily and the shoulders then reduced.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

A MEETING was held at the West London Hospital on May 4th, Dr. A. G. WELLS, the President, being in the chair.

Mr. MCADAM ECCLES read a paper on the

After-Treatment of Abdominal Operations.

He said that it had been contended that only one who had experienced an abdominal operation on himself could adequately treat a fellow sufferer. He could speak from personal experience of appendicectomy. Post-operative vomiting was partly due to the general anæsthetic, but not entirely, for he had seen it occur after spinal anæsthesia. His treatment for post-operative emesis was: (1) to allow the patient a pint of hot water to drink, with 5ss. sod. bicarb. dissolved in it; (2) a saline enema of half a pint was slowly given to relieve thirst, and this, if retained, was repeated in a few hours; (3) the patient was propped up with pillows, as this position stopped vomiting. Flatulence after laparotomy might be due to, at least, four causes: (1) purge and enema previous to operation; (2) a preliminary dose of morphine and atropine; (3) excessive manipulation of bowel, causing paresis; (4) too rigid confinement of abdominal patients to the dorsal position. Early flatulence was certainly best relieved by a pituitrin enema. Of great service was a hot fomentation placed over the whole abdomen superficial to a layer of cotton-wool. Solid food should be given as soon as possible. For late flatulence there was nothing better than a good dose of castor oil. Pain after abdominal operations was best relieved by a rectal injection of aspirin gr. x. and sodium bromide gr. xx. As for diet, except where the intestine had been actually interfered with, the sooner the patient had semi-solid and solid food the better. When a drainage-tube had been inserted it should be removed as soon as possible. A tube pressing against the intestine might cause a fistula within 48 hours of its insertion. As for retention of urine, after operation a catheter should never be passed if it could be possibly avoided. Under the strain of coughing or vomiting abdominal sutures might give way; the actual line of suture should therefore be inspected daily.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

A MEETING was held on May 3rd, Mr. A. J. HUTCHISON, the President, being in the chair. Dr. H. T. CUBBON read a paper on

Diathermy in Medical Practice.

Medical diathermy he described as the heating through of diseased tissue to a temperature insufficient to destroy the tissue or impair its vitality. The main physiological effects of diathermy were due to its thermo-penetration. The dilatation of the peripheral vessels, increased perspiration, and excretion of solids in the urine aided in the elimination of toxins. The local effects of heat generated in the tissues were to reduce spasm and increase tension with consequent relief of pain. The relief of pain was the most valuable property of diathermy. Subjects of deficient physiological activity of the processes concerned in the production of heat and maintenance of a normal temperature were among those suitable for diathermy. It was an effective method of supplying a supplementary ration of heat in marasmic diseases of children, malnutrition associated with stricture of the oesophagus or cancer of the stomach, and hypothermia following profuse hæmorrhage. Owing to its penetrating power diathermy was useful in the treatment of neuritis and was often of service in relieving the symptoms due to high blood pressure, though the effect appeared to be only temporary. Diathermy was effective in the treatment of pain and spasm due to hæmorrhoids which were not attributable to affections of the liver, heart, or compression of the rectum, and had been found useful in gonococcal infections of the cervix and in gonococcal arthritis before structural changes have taken place. The pain and muscular spasm in cases of lumbago and torticollis of recent origin were often benefited by diathermy, though chronic cases responded better to the constant current. For cases of painful menstruation treatment should be given daily for three days before the expected period and in some cases during the period also. Cases of amenorrhoea for which no obvious cause could be found could often be remedied by diathermy applications of low intensity. The treatment should be given for six days before the period is calculated to be due. Mr. August, of Paris, had had success in treating cases of abdominal pain in which no other lesion beyond adhesions and inflammation of the omentum were present. In coccydynia, great relief and usually complete cure could be obtained by diathermy. One electrode must be placed in the rectum and the other electrode applied externally over to the coccyx. Diathermy must be used with caution in gout; it would be found a useful adjunct to the treatment of infantile paralysis. The temperature of the paralysed limb could be maintained at a normal level by this method and so aid in the restoration of the nutrition of the limb. Until this normal temperature was attained electrical treatment was of little use. Diathermy had been found useful in treating the pain associated with herpetic neuralgia in old patients. Among maladies unsuitable for diathermy were chilblains and Raynaud's disease, which responded better to the constant current. Cases of trigeminal neuralgia did not respond well to diathermy. The treatment of rheumatoid and osteo-arthritis was disappointing.

After remarks by the PRESIDENT, Dr. W. BROADBENT, Dr. HELEN BOYLE, Dr. NEVILLE COX, Dr. G. L. LYON-SMITH, and Dr. J. H. STORMONT spoke, and Dr. CUBBON replied.

Mr. J. R. GRIFFITH then read a paper on the

Treatment of Acute Suppurative Infections of the Fingers and Hands.

He began by expressing his indebtedness to Dr. A. B. Kanavel, who had contributed greatly to our knowledge as to the treatment of these infections. They were dangerous in that they might spread through the

lymphatics into the general circulation and also because they might cause local destruction of tissue both by pressure and by cutting off the blood-supply. Treatment was, therefore, directed towards evacuating inflammatory products and relieving tension by means of incisions which did as little damage as possible and did not involve uninfected spaces. Mr. Griffith discussed the advantage of treating infections of the finger pulp by means of lateral incisions and described the method of treating infections of the nail bed by exposing and excising the root, a flap having been formed by making two lateral incisions continuous with the lateral margin of the nail. The treatment of infections of the fascial spaces of the palm and thenar eminence by means of an incision through the web of the finger and by one through the dorsal aspect of the first interosseous space respectively was also described. Collections of pus in the forearm spreading from the hand were usually situated between the flexor aspect of the interosseous membrane and the pronator quadratus deeply and the flexor tendons superficially. This space might be drained by means of an incision along the anterior margin of either the radius or ulna. This incision avoided important structures. The treatment of infections of the tendon sheaths was then discussed. In the case of the middle finger the importance of providing adequate drainage by means of a long lateral incision was stressed. In infections of the thumb and little finger tendon sheaths the possibility of extension of the infection from one sheath to the other and from a sheath to the neighbouring tissue spaces in the hand and forearm was discussed, together with methods of dealing with these infections and complications. The after-treatment consisted of prolonged arm baths in 2 per cent. saline; early mobilisation was to be encouraged, it did not spread the infection when incisions were adequate.

The PRESIDENT, Mr. H. J. WALKER, and Mr. M. FITZMAURICE-KELLY spoke, and Mr. GRIFFITH replied.

Reviews and Notices of Books.

TEXT-BOOK OF THE SURGICAL DYSPEPSIAS.

By A. J. WALTON, M.S., M.B., B.Sc. Lond., F.R.C.S. Eng., Surgeon, London Hospital; late Surgeon, Poplar Hospital, and Hunterian Professor, Royal College of Surgeons of England. London: Edward Arnold and Co. 1923. Pp. 728. 42s.

THIS valuable book should be in the hands of all those interested in the surgical diseases of the stomach, liver, gall-bladder, and pancreas. The author has dived deeply into the literature, which he presents in an impartial and balanced fashion, giving also his own views, based upon considerable personal experience. Where his clinical observations do not support experimental work done on healthy animals, he does not hesitate to say so. Thus he denies that in man V-resection of the stomach interferes with the emptying of the viscus. Indeed, he regards this resection, combined with gastro-enterostomy, as the method of choice for dealing with an ulcer of the lesser curvature. For pyloric ulcer a simple gastro-jejunostomy is recommended. The author seldom performs the Polya operation except for malignant disease. When we come to the section on the gall-bladder, conservatism gives place to radical measures: cholecystectomy is advanced almost to the exclusion of cholecystostomy. There is a good account of the anomalies of the bile-ducts and cystic artery which may be met with and give rise to trouble during the operation. The author's method of repair of an injured common duct is clearly described. A good review of that crippling condition visceroptosis is given. It is questionable whether the operation of complete colectomy should be included in a book of this kind, and we are glad to see that emphasis is laid upon the futility of any of the operations now in vogue for visceroptosis. We

may not agree with all the conclusions of the author, but without exception they are entitled to respect, based as they are upon personal observation and careful clinical work. All surgeons might not be disposed to admit that the several surgical diseases are associated with such distinctive and clear-cut clinical histories as are described here.

The illustrations are hardly up to the standard of the text. The artist in his attempt to portray what the author wishes to be emphasised, has produced rather crude contrasts and has failed to represent the texture of living tissues. But those which diagrammatically illustrate anatomy, or operative steps, are very satisfactory. It may be ungenerous to take exception to the title of so good a book, but it seems too comprehensive. The indigestion of carcinoma of the colon or rectum is just as much a surgical dyspepsia as the conditions described in this book. Mr. Walton must be congratulated on producing a notable addition to English surgical literature.

MINOR SURGERY.

Ninth Edition. By HENRY R. WHARTON, M.D., Surgeon to the Presbyterian Hospital, Children's Hospital, St. Christopher's Hospital, the Bryn Mawr Hospital, and Girard College. London: Baillière, Tindall and Cox. 1923. Pp. 647. 18s.

THE more time passes since the termination of the Great War, the more accurately is it realised how much less it has influenced modern surgery than many war-born surgeons would have us believe. There are, however, certain lessons which no lapse of time will ever efface, and of these two stand out predominant, the treatment of wounds and blood transfusion. In this ninth edition of his work on minor surgery, Mr. Wharton has devoted much space to these two subjects. He deals first with the immediate excision of wounds, their primary or delayed primary suture, and then passes to the treatment of infected wounds—e.g., by the Carrel-Dakin and other modern methods—and finally discusses secondary suture. The indications for and the technique of blood transfusion are fully discussed. There is nothing in the least difficult in this technique provided that the surgeon understands the method of testing the blood groups, but the text is hardly explicit enough in explaining how the groups are recognised. Certain small points in the manual require adjustment. It is out of place in a work of this kind to describe the technique of arteriorrhaphy as a method of arresting hæmorrhage. Again, we notice (p. 481) that the author, in drawing attention to the complications of fractures of the lower end of the humerus, mentions the loss of the carrying angle. The figure on the same page shows the position recommended in the treatment and explains at once why the loss of the carrying angle results. It is not enough to secure full flexion of the elbow, but the forearm must be maintained in full supination at the same time. In practice this is impossible to obtain if the hand is placed over the opposite clavicle as in Fig. 308. Fig. 169 shows a fracture of the shafts of the tibia and fibula, labelled as a separation of the upper epiphysis of the humerus.

The book is well written, freely illustrated, and should prove of great value to those engaged in dealing with minor surgical problems.

X RAYS.

Fourth edition. By G. W. C. KAYE, O.B.E., M.A., D.Sc., Superintendent of the Physics Department, National Physical Laboratory. London: Longmans, Green and Co. 1923. Pp. 320. 16s.

FROM the point of view of the medical radiologist Kaye's X Rays has been for some years one of the best English text-books on the physical side of the subject. It states as clearly as possible with a minimum of mathematics the essence of what has now become a large and complicated science. The present edition is 50 pages longer than the 1914 edition; but even this is a moderate increase considering the amount of

productive research work which has been done during the last few years. It is interesting to note that the Coolidge tube during those nine years has changed its position from that of a novelty described in an appendix to that of a routine piece of apparatus entitled to an early place in the straightforward descriptions of X ray tubes.

Much of the present edition has been re-written. The largest alteration is the increased space given to crystal structure, X ray spectrometry, and the X raying of materials in industry. Spectrometry from the medical point of view is of great interest, because in the course of time it may be of supreme importance in regulating the action of X ray tubes for purposes of radiography and treatment. The subject of scattered and characteristic radiation is also becoming of increasing importance to radiologists, so that the fuller, surer, and more systematic treatment of the science of these phenomena in this edition will be appreciated by those concerned in medical work. As the question of the protection of X ray and radium workers is now realised to be a vital matter, more space has been given to the consideration of the best means of shielding the operator; the memoranda issued by the X Ray and Radium Protection Committee are given in full in an appendix.

The book as a whole has kept well abreast of the most recent views on X rays and can be recommended for study to all interested in radiology.

BOTULISM AND FOOD PRESERVATION.

The Loch Maree Tragedy. By GERALD LEIGHTON, M.D., F.R.S.E., Medical Officer (Foods) Scottish Board of Health. London: W. Collins Sons and Co. 1923. Pp. 237. 10s.

Dr. Leighton was commissioned by the Scottish Board of Health to draw up an official report of the food poisoning which caused the death of eight persons at Loch Maree in August last. This report appeared as a white paper. The present book is based upon this report, upon discussions with professional colleagues, and a careful collation of the literature. It purports to be an accurate summary of our present knowledge of botulism and the bearing of that knowledge upon the whole subject of preserved foods. The subject of botulism is considered under the headings of history, cause, symptoms, treatment, and prevention, with a chapter on botulism in animals. The concluding part of the book tells the story of the Loch Maree tragedy.

A surprising amount of exact information is now available, as the author shows, in regard to a subject which until last year interested a mere handful of food experts and bacteriologists. The records show a singularly different ætiology in the two countries to which they are practically limited. Botulism has been known in Germany for the past 130 years, about 1200 cases having been recorded with a mortality of 30 per cent. Its former undue frequency in Würtemberg seems to have been due to sausage being prepared from liver and blood for consumption at a later date, the disease being rare in North Germany, where such organs are only eaten fresh. In America 396 cases are on record up to date, of whom 249, or nearly two-thirds, died, the disease having been traced in almost every instance to home-canned fruit and vegetables. It seems that the spores are very widely distributed, for out of 624 specimens of soil, vegetables, fruits, feeds, manures, and sewage investigated from various parts of California, 30 per cent. of the samples yielded toxic cultures. The bacillus is a strict anaerobe, and the potency of its toxin is terrible, for a dose of 1/40,000th of a cubic centimetre is fatal to a mouse. It is only the toxin which is poisonous to man; the bacillus and its spores do not represent a source of danger even if swallowed, although in experimental animals, injected with calcium chloride, botulism may result. In America it has been officially stated that the toxin itself is destroyed by heating to a temperature of 80° C. or a little less. The spores themselves are as difficult to kill as any known living bodies;

they have resisted boiling for 330 minutes or being raised to a temperature of 120° C. for four minutes, and the spores isolated from different kinds of canned products have exhibited a variation in heat resistance from 10 to 230 minutes.

In America certain rules for the home-canning industry have now been laid down which may be briefly summarised thus: (1) To use only clean, sound, and perfect fruits and vegetables; (2) to inspect the container carefully at the time it is opened; (3) to bring all canned vegetables to the boil after opening; (4) to dispose safely of cans of tins suspected of being bad. And in the case of spinach and ripe olives stringent restrictions have now been imposed upon the preservers. The acidity of the preserve has been shown to be of great moment. Most fruits, as well as tomatoes and rhubarb, are so acid as not to be subject to botulinus spoilage if properly packed; in fact, only products which have a higher acid factor than pH 4.5 need to be carefully sterilised. Dr. Leighton holds that the tin is superior to the glass as a container of preserved foods since the glass container in common use does not lend itself to efficient sterilisation. He puts down the unpopularity of the tin in large part to the difficulty in opening, and he foreshadows a fortune awaiting the individual who invents a tin opener which will do its work with ease and comfort and without risk to the operator.

The book is one which may be read with profit by all who are interested in food preservation. The story is well told and the interest is sustained throughout.

PSYCHOLOGY AND PSYCHOTHERAPY.

Psychological Types: or the Psychology of Individuation. By C. G. JUNG, Dr. Med. et Jur. of the University of Zurich. Translated by H. GODWIN BAYNES, M.B., B.C. Cantab. London: Kegan Paul. 1923. Pp. xxii. + 654. 25s.

Jung's work on psychological types and their division into the introvert and the extravert was an extension of observations that had long been common property of philosophers. He shows this in his study of the type problem, where he draws material from classical and mediæval thought, from the theological disputes of the ancient church, and from poet philosophers, before reaching modern thought as expressed by William James and Fernelius Jordan—whose appearance in this company reminds us that one of the most important recent additions to the theory of the herd instinct comes from an English surgeon. Jung now enlarges his classification, and by subdividing in accordance with the basic functions of thinking, feeling, sensation, and intuition, he arrives at no less than eight types; and as he concludes that each type is impelled to seek its own theory of psychic processes, and that each theory must be granted equal validity, he confessedly leaves his readers bewildered. In fact, Jung would seemingly agree to a rough classification of types into those who understand him and those who do not; and those who do not will certainly dismiss a good deal of this book as metaphysical. Still, close reading satisfies one that mankind can be generally classified into his groups, and, since psychologists have to some extent adopted his terminology of introversion and extraversion, his further divisions may find at least a descriptive use. The translator has well performed what must have been a difficult task.

The Psychology of Self-Consciousness. By JULIA TURNER, B.A. Lond., President of the Psychological Aid Society. London: Kegan Paul. 1923. Pp. 243. 6s. 6d.

THIS is a combination of the writer's personal beliefs with what, in contra-distinction to psychoanalysis, is known as analytical psychology. She divides personality into a perceptual and a conceptual self, finding in the latter a source of philosophical speculation which passes into mysticism. "The purpose of the conceptual life is the mystery of mysteries" (p. 168) prepares us for something specu-

lative, but not for the news, concerning the conceptual subject, that "his life being one of thought and feeling only, it is independent of immediate sensory stimulation," which calls up to the medical psychologist an image of dementia præcox and is, indeed, a conception closely akin to that of schizophrenia. The writer's incursions into medicine may find justification in our tendency, as she puts it, to regard the human economy as merely a piece of physiological mechanism, but she places herself in the category of impossible enthusiasts when (in page 9 et seq.) she seems to believe that the root of all disease is in the mind. The book is sincere, but leads into realms where emotional aspirations replace the prosaic study of causes and effect.

Psycho-analysis and Suggestion Therapy. Their Technique, Application, Results, Limits, Dangers, and Excesses. By DR. WILHELM STEKEL. Authorised translation by JAMES S. VAN TESLAR. London: Kegan Paul. 1923. Pp. 155. 6s. 6d.

THE publisher's notice of this book says that it is designed for the busy practitioner and the sufferer from "nerves," but whoever makes it his first acquaintance with the subject will surely reject most of the contents. Dr. Stekel actually has great clinical experience behind his dogmatism, but he hurls the dogma at the unprepared reader in a way that causes aversion. There is good material in the book, and its crudities are partly atoned for by the author's frank discussion of his own difficulties and failures, but its usefulness to the practitioner is doubtful. The suggestion that a book of this nature is suitable for the sufferer from "nerves" is to be strongly condemned.

BRAIN ABSCESS.

Its Surgical Pathology and Operative Technic. By WELLS P. EAGLETON, M.D., President of the American Otological Society. London and New York: Macmillan and Co. 1922. Pp. 297. 31s. 6d.

A SURGICAL text-book to-day may be written for one of two purposes. Its sole purpose may be to serve as a manual of teaching, in which case it will give a complete account of accepted principles, or it may aim at presenting new work and so advancing a special branch of surgery. The work under review does not naturally fall into either category. It certainly does not follow the accepted teaching of the subject, nor does it enter sufficiently into details to be regarded as a monograph of new work. The arrangement of material is open to criticism. In the first two chapters small paragraphs are given to the technique of operation; these are not only useless, but leave the inference that they are the only description given of the author's operation, whereas a fuller account is given on page 40. The pathological considerations in the early part of Chapter III. are sketchy and can be dismissed as padding. The varieties of abscess are classified anew, being described as secondary or adjacent and intercurrent or tertiary. This classification is cumbersome and does not give any practical help. Indeed, it is difficult in reading the book to obtain a clear idea of the subject, for in passing from chapter to chapter there appears to be little or no continuity. There are embodied, however, several important conclusions based upon the author's work. This experience includes a list of 31 personal cases and an analysis of 270 post-mortem records of cerebral and cerebellar abscess.

The most valuable part of the work is that which deals with the differential diagnosis between abscesses with and without a capsule, and the description of the appropriate treatment of each. It makes widely known the fact that every effort must be made to preserve the capsule, and to avoid by trauma infection of the brain tissue. The routine treatment advocated is the formation of a large osteo-plastic flap in the temporo-sphenoidal region, but it is difficult to see why a superior pedicle is advocated, for the blood-supply is much less satisfactory thus than with the

usual inferior pedicle. The author confesses in a foot-note that the majority of such flaps have been infected when an abscess has been located. The analysis of post-mortem cases is given in the form of two appendixes, but these mainly consist of the author's name and a heading of condition found, although occasionally there is a note of a few symptoms. Although the original descriptions may have been of great use to the author, his abstracts are of small value for reference, as they teach no lesson either good or bad.

The symptomatology is certainly the strongest part of the book, and from this aspect the work will be found useful to those engaged in this branch of surgery.

A MONOGRAPH ON GONORRHOEA.

By A. REITH FRASER, M.D. Aberd., Lecturer in Venereal Diseases, Cape Town. London: Henry Kimpton. 1923. Pp. 508. 18s.

THE author says in his preface: "This monograph is frankly a plea for the conservative treatment of gonococcal urethritis and for the management of gonorrhoea as a general systemic disease instead of a local specialised catarrh." Further on he expresses the hope that the book will stimulate new lines of thought, dispel old and mistaken dogmas, or replace certain accepted conceptions in their true perspective. After this it is a little disappointing to find a text-book on gonorrhoea without any very new ideas or methods and not including all that is known to date on the subject.

The treatment is laid down in discursive fashion. It is sound enough, but the manner is not concise and not always clear—for instance, Dr. Fraser advises giving a patient in the acute stage in place of novels some heavy work requiring thought and concentration relating to his trade or profession, and two pages later advises against "all active exercise." In the matter of posterior gonorrhoea space is wasted in tilting at the mythical person with a mania for urethroscopy. The section dealing with gonorrhoea in the female is too sketchy to be of value to the serious reader and might have been omitted. The main teaching of the author seems to be caution in treatment—a sound dogma, but apt to be overdone. Dr. Fraser is an enthusiast for vaccine therapy.

There is much that is of value in the book, but it contains too many general statements and too little that bears the stamp of personal experience.

GLANDS IN HEALTH AND DISEASE.

By BENJAMIN HARROW, Ph.D., Associate in Physiological Chemistry, College of Physicians and Surgeons, Columbia University. London: George Routledge and Sons, Ltd. 1922. Pp. 218. 8s. 6d.

"MONKEY glands: clever men and stupid ones; glands as the cause of crime; the origin of races; the mentally unbalanced; many acute diseases; 'the bearded lady, the giant, the fat boy, and the midget'—all these and more have been dealt with under the subject of the glands of internal secretion." The present volume, though only of an elementary standard, contains a great deal of sound information presented in an interesting manner; it is suitable for either the general reader or for the practitioner who wishes to obtain trustworthy views on the subject, but has no time for heavier treatises. The book contains no reference to the recent work on the internal secretion of the pancreas, no doubt because this appeared while it was in the press—an illustration of the kaleidoscopic nature of the subject. In the chapter on the reproductive organs we have an interesting presentation of the rejuvenation methods—the putting of "new wine into old bottles"—which has of late attracted some attention. These methods are vasectomy, exposure to X rays, and transplantation of testis. Of these methods, that of vasectomy is most favourably viewed, because it results in actual hypertrophy of the interstitial tissue of the subject's

own testis. The effect of X rays is less certain, while with grafts the improvement ceases as soon as the graft has all been absorbed.

We congratulate the author on producing a sensible book for popular use.

THERAPEUTISCHES VADEMEKUM FÜR DIE KINDER-PRAXIS.

Fourth and fifth edition. By H. KLEINSCHMIDT. Berlin: S. Karger. 1923. Pp. 227. M.3.

Prof. Kleinschmidt, who directs the Children's Clinic at Hamburg University, first published this compilation in 1918. A short preliminary section on the general principles of treatment in children's diseases is followed by 24 pages on the subject of infant feeding in health and illness, breast-feeding, as well as "unnatural" or artificial feeding, receiving brief but adequate attention. Useful chapters on the diseases of the new-born and on disorders of nutrition in the infant are introduced, but the main portion of the book consists of a synopsis of treatment, the diseases being grouped alphabetically under the various organs or systems mainly affected. A subject-index obviates any difficulty in cross reference. Prophylaxis as well as treatment is considered, and occasionally attention is drawn to symptomatology where difficulty may arise, as in the differential diagnosis of myelogenous purpura. The therapeutic measures advocated are representative of current medical practice on the Continent. This is especially the case where serum-therapy is concerned—e.g., the injection of serum from a convalescent case is recommended both in the prophylaxis of measles and in the treatment of severe cases of scarlet fever. In the section on diphtheria, however, while recommending that the brothers and sisters of the patient should be protected by the intramuscular injection of 500 units of antitoxin, Prof. Kleinschmidt makes no mention either of the preliminary Schick test, which should always be carried out where possible in children over 3 years of age, or of the toxin-antitoxin method of immunisation, which is so largely used in America, and is believed to confer a very much longer period of immunity than the three weeks' protection afforded by the author's method—omissions which might be remedied in a future edition. The important place of diet in the treatment of many diseases is emphasised, and a number of simple recipes included.

A vast amount of information has been compressed into the 227 pages of this useful volume.

BOOKS FOR NURSES.

A Handbook for Mental Nurses. Seventh edition. Published under the authority of the Medico-Psychological Association. London: Baillière, Tindall and Cox. 1923. Pp. 640. 6s.

A COMMITTEE of the Medico-Psychological Association has been at work for two years in producing this book. Each section of it has been rewritten either by a member of the committee or by an authority appointed by them, and subjected to close scrutiny and revision at the meetings which have taken place since the committee was set up in 1920. The result is a volume of much greater length and scope than its predecessors. It occupies a unique position among text-books of mental nursing, for not only is it adequate to the needs of nurses at any stage of their training, but it carries an authority which no text-book by any single individual could possess. There are no small difficulties in producing such a work. Every mental nurse is intended to possess it, and a mental nurse may be either a highly intelligent and cultured woman with a previous general hospital training, or a man or woman lacking in some of that mental equipment and with no previous experience of any kind of nursing. The same mode of address is not appropriate to each of these individuals. The introductory chapter on the general conduct of a nurse, for example, was evidently written with the latter type in view, whereas some of the later sections presuppose for their proper understanding a much

higher degree of general intelligence and education. This inequality is not only a natural effect of multiple authorship; to some extent it is inevitable in dealing with subjects ranging from matters of the merest common-sense to academic psychology.

Another aspect in which compromise was inevitable is the treatment of general nursing matters. To have made these sections complete would have been to produce two text-books in one, and to go beyond the present scope of a mental nurse's training. On the other hand, to omit brief descriptions of common diseases and their nursing requirements was impossible. An example of what this means is to be found in the paragraph on diphtheria. The only instruction given as to the preparation for tracheotomy and subsequent dressings is to have at hand a plentiful supply of sterilised feathers. The remarks on the nursing of typhoid and rheumatic fever are also too brief to be of service; a nurse responsible for such cases would be compelled to consult other works, or to depend entirely on the instructions of a medical officer. Such patients would, of course, often be placed in the care of nurses with a general training, and the real question underlying the whole matter is whether asylum nursing staffs should not be recruited to a greater extent from those who have undergone such training elsewhere, or, on the other hand, whether facilities should not exist for providing a larger number of mental nurses with training at a general hospital at a later stage in their careers.

A still wider question is exemplified in the sections which treat of psychology, and the anatomy and physiology of the central nervous system. The descriptions given of such structures as the spinal tracts and the basal nuclei would appear formidable at first sight even to the medical student. It is, however, impossible to describe the mechanism of the nervous system in a manner so simple as to be understood immediately by an un instructed reader, however intelligent. Although the scope of the handbook corresponds to that of the syllabus of training for mental nurses laid down by the Association, it is not implied that an exact knowledge of everything contained in the handbook is required. The more difficult and theoretical sections are inserted for the benefit of those who are inclined to the study of this aspect of their subject, and the handbook is therefore to be regarded as a work of reference as well as a text-book.

The chapters dealing with insanity, and with the practical aspect of mental nursing, are beyond criticism and beyond praise. The care with which the preparation of this edition has been undertaken is reflected in its up-to-date and accurate information, in its clear style, and in the attention to practical points.

Text-book for Fever Nurses. By GRACE H. GIFFEN DUNDAS, F.R.C.S.I., D.P.H. Camb. Edinburgh: W. Price. 1923. Pp. 202. 4s. 6d.

Mrs. Dundas's small book on fever nursing is useful as far as it goes, but it does not go far enough; of the 202 pages, 89 only are devoted to infectious fevers. There are so many excellent books on anatomy and physiology that the eight chapters devoted to these subjects might well have been omitted in favour of some account of typhus, cholera, and infective diarrhoea, which would have been invaluable to those hoping at some time to nurse abroad.

C.M.B. Examination: Questions and Model Answers. A Handbook for Nurses entering for the Central Midwives Board Examination, with Abridged Rules and other Useful Information. London: The Scientific Press, Ltd. 1923. Pp. 125. 1s. 6d.

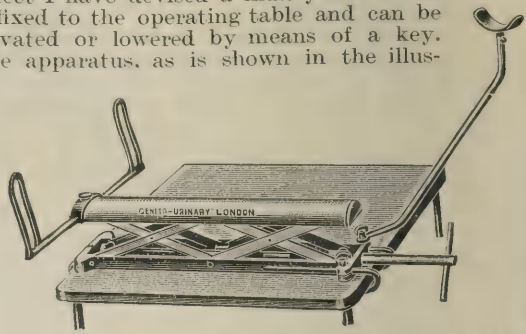
THIS little book not only contains model answers to questions set at the Midwives Board examinations, but also information on how to become a midwife, institutions, &c., at which pupil midwives may be trained, an obstetrical table, and the rules of the

Central Midwives Board abridged. The model answers to the questions are well arranged and thorough, and should prove useful to nurses taking these examinations. The volume as a whole is an excellent little publication.

New Inventions.

A NEW KIDNEY REST.

THE many contrivances which have been made use of in kidney operations for the purpose of maintaining an anæsthetised patient in the lateral position, and at the same time widening the interval between the lower ribs and the crest of the ilium, suffer from the common defect of having to be placed in position after the patient is unconscious. To avoid this defect I have devised a kidney rest which is fixed to the operating table and can be elevated or lowered by means of a key. The apparatus, as is shown in the illus-



tration, consists of a flat base trough adapted to lie transversely across the operating table with a pair of hooked clamps at each end to grip the table edge. One pair of these clamps is extensively adjustable to accommodate the device to various widths of table. A rotatable spindle is mounted in the trough having right and left screw threads at each end respectively and a rounded elevating table is carried by trellis links connected to the base and to brackets running on the opposite threads of the spindle, so that rotation of the spindle contracts or expands the trellis and raises or lowers the elevating table. The whole elevating mechanism lies concealed between the flat base trough and elevating table. A back-rest is fixed to the elevating table by means of a stirrup-shaped clamp and can be easily removed; while an arm support is detachably connected to the base on the opposite side. The apparatus weighs 12 lb. and can be put into a wallet 20 in. x 6 in.

The rest is made by the Genito-Urinary Manufacturing Company, Ltd., 66, Margaret-st., London, W.

CLIFFORD MORSON, O.B.E., F.R.C.S. Eng.

Welbeck-street, W.

AN IMPROVED OPHTHALMOSCOPE.

HAVING used an ordinary electric ophthalmoscope for some time, I found that if the light was sufficiently powerful to see the disc in an ordinary room there was a haze round the slot in the mirror and also from the transverse beam. I tried various forms of mirrors—glass, steel, and silver—but could not obviate this haze and back light from the slot. I then tried building a small hood round the slot but found this interfered somewhat with the vision. As a last resort I decided to try having a glass prism slotted. This I entrusted to Messrs. George Spiller, Ltd., who took a careful interest in the work and produced a small silvered prism, with a slot for vision. With this they have now made for me an ophthalmoscope, from which there is no back light or haze, so that the light can now be much stronger and a good view of the disc obtained in full daylight.

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THE LANCET.

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ANTE-PARTUM HÆMORRHAGE.

HÆMORRHAGE from the gravid uterus during the last three months of pregnancy is one of the gravest of all obstetric complications. It is sufficiently frequent for every practitioner of midwifery to see a fair number of cases, and its importance as an integral factor in the mortality of childbearing is shown by the figures to be found in the Registrar-General's Reports for England and Wales. Since the year 1915 deaths from placenta prævia have been separated from the other "puerperal hæmorrhages" as they are entitled in the reports, and it appears that about 200 deaths from placenta prævia alone occur every year. The deaths from accidental hæmorrhage are not given separately, but it will not be far off the mark if we assume that from 300 to 400 women lose their lives in England and Wales every year from ante-partum hæmorrhage. It is impossible to form any accurate estimate of the frequency of its actual occurrence since the requisite data do not exist; only the cases which end fatally are on record. We know, however, what numbers of cases of ante-partum hæmorrhage are admitted to our lying-in hospitals; these are, generally speaking, the most severe cases, and one or two interesting points may be gleaned from a study of the annual reports of these hospitals. Ante-partum hæmorrhages appear to be much more frequent in the practice of hospitals serving industrial districts than in London. Thus in a London lying-in hospital (Queen Charlotte's) over a recent period of five years the numbers were 21 cases of ante-partum hæmorrhage per 1000 cases admitted; in a Midland industrial district (Birmingham) they were 85 per 1000 cases admitted, and in a third hospital serving a northern industrial district (Manchester), 58 per 1000 cases admitted. Perhaps the larger proportion of women engaged in fatiguing occupations in the industrial towns accounts for the higher number of severe cases of ante-partum hæmorrhages occurring in those districts. All the reports agree that placenta prævia is more frequent than accidental hæmorrhage, the proportion varying from 55 per cent. of the total in London to 75 per cent. in Birmingham; the mean relative proportion is about five cases of placenta prævia to four of accidental hæmorrhage. The relatively high proportion of cases of accidental hæmorrhage in London (45 per cent., as compared with 25 per cent. in Birmingham) is surprising and very difficult to account for. The relative severity of the two kinds of ante-partum hæmorrhage is also curiously unequal in the different districts, as will be seen from the following rates of maternal mortality:—

Maternal mortality.

	Placenta prævia (per cent.).	Accidental hæmorrhage (per cent.).
London	7.3	1.2
Birmingham	4.6	3.1
Manchester	7.2	9.6

The high mortality of accidental hæmorrhage in Manchester and its very low mortality in London are interesting points which would perhaps repay further inquiry. The average mortality rate of

placenta prævia over these total figures is about 6.7 per cent. and that of accidental hæmorrhage about 4.6 per cent., the former being thus nearly 50 per cent. more dangerous than the latter. This relation probably expresses fairly accurately the comparative severity of these two forms of hæmorrhages.

The classification of cases of ante-partum hæmorrhage, in accordance with the situation of the placenta, into *placenta prævia* (or unavoidable hæmorrhage) and *accidental hæmorrhage* is universally adopted in all countries and is of great practical value. The importance of endeavouring to arrive at a differential diagnosis, the value of which is often underrated by practitioners, lies in the fact that the treatment of the two conditions is by no means identical. The difference in treatment depends upon three important points of difference in prognosis. First, in a case of placenta prævia labour rarely ensues upon the first hæmorrhage; repetition of the hæmorrhage is certain to occur, and a sudden profuse bleeding may at any moment bring the patient to a point of extreme danger; in a case of accidental hæmorrhage, on the other hand, labour more frequently accompanies or rapidly succeeds the first hæmorrhage; if labour does not set in and pregnancy continues, it is quite possible that no further bleeding will occur, and normal labour may bring the case to a favourable termination, either prematurely or even at term. Secondly, the delivery of the patient in cases of placenta prævia is a much more difficult obstetric problem than in accidental hæmorrhage. Thirdly, the maternal mortality of the former is, as we have seen, 50 per cent. greater than that of the latter.

In the twenty-first article of our series on modern technique in treatment Dr. T. W. EDEN sets forth the considerations which should influence decision on the line of treatment to be adopted in ante-partum hæmorrhage from either cause. It is clear that the presence or absence of albuminuria is a vital point, and one of the first things to be done by a practitioner confronted with a case is to secure a catheter specimen for examination. Accidental hæmorrhage is accompanied in about 80 per cent. of cases by albuminuria, frequently also by other toxæmic symptoms, such as oedema, headache, and vomiting. In other words, a toxæmic condition is present, which is probably the essential cause of the hæmorrhage from the placental vessels, and eliminative treatment is therefore indicated. If all cases of accidental hæmorrhage could be kept under continuous observation after the first attack of bleeding, and prophylactic treatment diligently carried out, the mortality would probably be greatly reduced and few really serious cases would be seen. In this respect accidental hæmorrhage differs from placenta prævia, where prophylaxis is impracticable. The bleeding results from the vicious situation of the placenta in the lower uterine segment, and since its recurrence is unavoidable there is no object in temporising. In a case where labour has not begun the problem resolves itself into the choice between induction of labour and Caesarean section, and Dr. EDEN indicates the main facts which ought to influence the decision. In discussing the methods to be adopted when hæmorrhage occurs during labour he excludes the use of de Ribes's bag except in hospital practice and under limited indications. This is indeed a method of dilating the cervix rather than a method of delivery. It is alleged to give a better chance of survival to the infant, but this has not been proved, and since it has certain disadvantages in comparison with podalic version the latter is likely to be favoured by most practitioners. The principles

which should be applied in the treatment of cases of different varieties of ante-partum hæmorrhage are most clearly set out by Dr. EDEN, and his article should be of great assistance to those engaged in the practice of midwifery.

THE SUPPLY OF INSULIN.

ON April 21st, 1923, the Medical Research Council published a statement setting forth the steps that had been taken to make insulin available for use in this country. At that time the supplies of insulin were inadequate to meet the demand that might be expected, and it became necessary to secure that the limited quantities available should be distributed to the best advantage. The question was submitted by the Council to the Minister of Health, who appointed a Committee composed of Sir GEORGE NEWMAN (chairman), Dr. R. A. BOLAM, Sir WALTER FLETCHER, Sir HUMPHRY ROLLESTON, Dr. ALFRED SALTER, M.P., Dr. McCLEARY (secretary) to advise him on distribution. On the advice of the Committee the manufacturers were directed during the period of restricted production to supply insulin for use in this country only, and to those hospitals and to those registered medical practitioners who undertook to observe certain defined restrictions upon the use of insulin. The following additional statement can now be made. During the past four weeks the productive capacity of the British firms has considerably increased, and it is no longer necessary to maintain the restrictions upon the supply of insulin, which, therefore, may now be obtained from the manufacturing firms through the ordinary commercial channels. But the Council consider it advisable again to remind the members of the medical profession, who desire to use insulin, of the great importance of making accurate blood-sugar determinations, of correlating the diet, the blood-sugar changes and the insulin dosage in each case, and of avoiding the danger of giving insulin in cases of renal glycosuria or other non-diabetic conditions.

We publish in THE LANCET this week an address delivered by Prof. HUGH MACLEAN before the Congress of Public Health at Scarborough on the present position of medicine in the diagnosis and treatment of glycosuria. He shows how newer methods in investigating glycosuria have made possible a classification of the cases presenting glycosuria as a prominent symptom, and makes it clear that a study of blood-sugar reactions is necessary for scientific therapeutics. The value of insulin, and the general outlook for its employment, are outlined at the termination of an interesting exposition of the whole subject, and Prof. MACLEAN's conclusions exactly support the words of advice closing the statement of the Medical Research Council. He notes that blood-sugar determinations must be taken with great care by those who employ insulin, and that diet must always be correlated to insulin dosage, for only in this way can there be any reasonable certainty that it is right to administer the product, or that the procedure will be perfectly safe for the patient. For insulin is a powerful remedy, and in the hands of inexperienced users serious difficulties may arise during its exhibition.

We are glad to announce that insulin can henceforth be obtained through the usual commercial sources, and may take this opportunity of congratulating alike the Medical Research Council and the manufacturing firms concerned on the results obtained. When the Council accepted from the University of Toronto the

exercise of protecting powers and controlling discretion in the matter of the production and distribution of insulin there was some criticism of the position produced, as being foreign to medical tradition. But we feel assured of two things. The intervention of the Council has enabled a supply of the standardised production to be far more promptly available than would otherwise have been the case, while the risk of valueless imitations being put upon the market has been avoided.

VISCEROPTOSIS.

THE excellent survey of visceroptosis given in Mr. A. J. WALTON's "Text-book of the Surgical Dyspepsias," which we review in another column, recalls attention to a morbid entity of no little complexity. Since GLÉNARD first described the condition of dropping of the abdominal viscera, to which his name is often applied, a great deal has been written on the subject, but there is as yet no consensus of opinion as to its nature, causation, symptomatology, or treatment. Even its nomenclature is protean and confusing. Glénard's disease, enteroptosis, and splachnoptosis have been used to express the general condition of sagging of the abdominal viscera, while the terms gastropptosis, hepatoptosis, nephropptosis, coloptosis, and uterine prolapse show how the displacement of individual organs has attracted attention. The comparatively recent name of visceroptosis, though perhaps not elegant, is expressive and comprehensive. At any rate it may serve to emphasise the fact, which should be obvious, that the whole includes the parts, and that the condition is usually general not local. The history of this condition makes somewhat melancholy reading. There has in many instances been a lack of true perspective in its consideration. The various operations proposed to deal with individual displaced organs have had their vogue and have, for the most part, failed to establish their value, except in a few well-recognised mechanical results of the sagging. That the condition of visceroptosis may be associated with most profound discomforts and disabilities is familiar to most practitioners. On the other hand, it is becoming recognised, since the wide use of X ray examinations of the abdominal viscera, that very marked dropping of the intestines, and especially of the colon, may be consistent with sound health and active bodily functions.

Visceroptosis has recently been the subject of discussion at the Chelsea Clinical Society and the report of the debate, which was published in THE LANCET of April 7th (p. 698), well illustrates the differences of opinion which still exist in regard to this condition. The opener, Sir CHARLTON BRISCOE, maintained that the visceroptotic habit or tendency was produced early in life. He suggested that conditions which tended to induce predominant abdominal respiration helped to develop visceroptosis. He urged due attention to such matters as the position of children at desks, nasal obstruction from adenoids, and frequent colds, fatigue, and over-exercise. He also advised proper exercises and measures to develop the upper chest. Mr. IVOR BACK questioned whether visceroptosis existed as a pathological or clinical entity, and cogently pointed out how our views of the normal position of the viscera, as studied by the X rays, had rendered it necessary to modify the older views obtained from

dissection and from formalin-hardened bodies. He referred to the practical discrediting of nephropexy except for comparatively rare cases in which the dropping of the kidney was mechanically responsible for the symptoms produced, as in Dietl's crises, and he suggested that the operation of colopexy would prove to have a similarly limited field of usefulness. Dr. ROBERT HUTCHISON, in a noteworthy contribution to the discussion, claimed that visceroptosis was a definite clinical entity, but pointed out some of the difficulties in connexion with it, notably its almost constant association with neurasthenic manifestations and the fact that it not infrequently produced symptoms simulating acute organic abdominal disease such as gall-stones or gastric ulcer, while on the other hand it might be present without symptoms. Dr. HUTCHISON criticised the views expressed by Sir CHARLTON BRISCOE as to causation, suggesting that in women, in whom the condition was most often found, diaphragmatic breathing was less common than the thoracic type. He thought that the size of the pelvis in women and derangements of its floor, particularly as a result of pregnancy, were of more importance, together with a loss of the supporting fat within the abdomen. He suggested that the symptoms developed when atony of the visceral muscle resulted, or when weakness of the abdominal muscles led to diminished intra-abdominal tension. He recommended the adoption of measures to strengthen the abdominal walls and to repack the abdomen with fat. He thought that the relief sometimes afforded by belts was not due to the holding up of the viscera but to the increasing intra-abdominal tension. Several of the speakers maintained that visceroptosis was of congenital origin. Dr. F. HERNAMAN-JOHNSON recognised two types: one commonly following pregnancy and due to laxness of the abdominal walls, this form being preventable by suitable precautions and treatment; the other type, which he regarded as congenital, occurred in tall, thin women. Dr. J. CAMPBELL McCURE, the President, referred to the two opposing innervations of the alimentary tube—viz., the vagus and the sympathetic—and believed that a lack of balance between these innervations might result in gastro-intestinal stasis, and was anyhow an important factor in the production of symptoms.

The chief outcome of the discussion is to emphasise the gaps in our knowledge of visceroptosis and the far from satisfactory means of treatment at present available. That there is a need for individual and collective research must be obvious. The one point of general agreement seems to have been that the rôle of surgery in the treatment of this condition is a strictly limited one. The plea put forward by several of the speakers for preventive measures in the form of proper rest and support after pregnancy and for means to improve the abdominal musculature and visceral tone of those prone to the disease, deserves careful consideration. The concomitant nerve manifestations and the neurasthenic state, so often associated, received but little consideration. They constitute perhaps the most troublesome and distressing features of the condition. They are difficult to explain and still more difficult to treat. It is probable that the complex symptomatology is due to various combinations of mechanical, toxic, nervous, and endocrine factors. The recognition of the rôle of each of these and the determination of their relationship to one another should do much to clear up the causation and pathology of the condition. This discussion should stimulate fresh endeavours to put treatment on a more satisfactory basis.

Annotations.

"Ne quid nimis."

THE LISTER INSTITUTE.

THE annual report of the governing body of the Lister Institute of Preventive Medicine was presented at the general meeting of members on May 16th, and gives an interesting summary of the activities of that institution; some of the results of the activities of that done by members of the staff and others working there have also recently been distributed in the annual volume of collected papers. Among a great variety of important topics, the chief place is taken by the investigation of accessory food factors. On the experimental side the work of Prof. Korenchevsky, Dr. Goldblatt, Miss Hume, and their collaborators on the relation of diet to growth and rickets in rats will be familiar to our readers, and in the more difficult clinical field Dr. Harriette Chick, Dr. Dalyell, Dr. Mackay and their co-workers achieved a considerable advance in our precise knowledge of human rickets at Prof. v. Pirquet's Kinderklinik in Vienna. Prof. Harden, Dr. Zilva, and Dr. Schütze have also been engaged on various aspects of vitamin problems. The department of bacteriology under Prof. Ledingham has investigated diphtheroids, tularæmia, typhus, blood-platelets, streptococci, the bacteriophage, protein therapy, the carriage of cholera vibrios by ship cockroaches, the relationships of the bacilli of bovine abortion, and Malta fever among other subjects. At the serum department at Elstree Dr. MacConkey has been chiefly engaged in the stability of toxin and antitoxin standards and the concentration of antitoxin sera. As many working bacteriologists could testify, the National Collection of Type Cultures, established at the Institute with the help of the Medical Research Council, has been a great success. Among much happy progress, there are unfortunately several deplorable events. Chief among these is the loss of that wonderful disciple of true learning, Mr. A. W. Bacot, who died of typhus contracted in Egypt during his work there on the disease; Dr. Arkwright also took it, but fortunately recovered. In maintaining the virus of the Californian disease, tularæmia, in the Type Collection, Dr. Brooks, Dr. Schütze, and Miss Rhodes all caught the infection, as have most people who have worked with it. We notice, too, with regret that the University of London appears to have now entirely withdrawn its support of the protozoological laboratory, and the absence through illness of Dr. Robertson is also mentioned. In face of a good many difficulties, however, the work of the Institute has continued to progress on the high level which it has set and Prof. Martin is to be congratulated on another successful year. The financial position is satisfactory in so far as there is a balance on the right side; but about two-thirds of the money which is spent in maintaining research has to be earned in a rather precarious market by the manufacture of sera, &c., and this uncertainty of income naturally hampers the governing body in embarking on any fresh schemes which involve any lasting financial responsibility. Twenty-nine years of service so good as that which the Institute has given to the cause of preventive medicine deserve a more comfortable stability.

SYPHILIS OF THE SECOND AND THIRD GENERATION.

BESIDES the ordinary congenital syphilis of the first generation which parents transmit to their children there are other much rarer forms in which the disease is transmitted from the grandfather to the grandchildren, or from the great-grandfather to the great-grandchildren. Observations, which are not numerous but of great interest as coming from authoritative sources, appear to leave no doubt as to the existence of

this form of hereditary lues, and while Brunisgard expresses the opinion that this form can only be transmitted by a mother who is definitely syphilitic, yet Gaucher, Clover, and others have shown that the heredity can also be transmitted by a father or by both parents. Prof. Carlo Martelli, of the University of Naples,¹ has collected nine cases which disclose further interesting facts regarding this condition and from which it appears that though it is easy to understand a toxic, dystrophic, and non-parasitic transmission from the grandfather to the grandchild through the father, these cases do not imply a virulent syphilis in which transmission is connected not with toxins but with active treponemes. In Prof. Martelli's cases relating to numerous grandchildren of various grandparents and great-grandparents, nearly all of maternal origin, there is almost always found a vigorous defensive humoral reaction with presence of antibodies in the serum and a strongly positive Wassermann reaction. In most of the cases the subjects of syphilis of the second generation are weak, prone to all those ailments which easily conduce to a fatal result—and sometimes without appreciable cause, disposed to general dystrophies, such as infantilism, dwarfism, and dental malformation; but on the other hand cases are not wanting, like those described by Prof. Martelli, in which the grandchildren are found possessed of all the best somatic and psychic developmental endowments, so that only an accurate investigation is successful in revealing the slight anatomical and functional stigmata of the disease transmitted by the grandparents. Rarer than hereditary syphilis of the second generation is that of the third generation, in which the great-grandfather transmits the disease even to the great-grandchildren. Such an event requires a lapse of so much time that the opportunity of following it to its conclusion is rarely afforded, yet a case of this character exists in literature and was communicated by Gaucher to the Academy of Medicine of Paris in 1916.

In this case the great-grandfather died of syphilitic paraplegia, according to reliable information furnished by the son; the grandfather, personally known, had numerous stigmata of hereditary syphilis and died of cerebral hemorrhage; the father was healthy and had never contracted syphilis yet gave a positive Wassermann reaction. He married a woman with negative reaction and had three children affected with hereditary syphilis, one, a girl aged 9 years, with scoliosis, adenoids, and notched incisors, another, a girl of 6 years, almost an imbecile, with flat nose, uneven teeth, and convergent strabismus.

One of Prof. Martelli's cases carries this form of familial syphilis as far as the fourth generation.

The great-great-grandfather suffered from dementia of specific origin, his daughter (the great-grandmother) died at the age of 75 from biliary calculus, having married a widower, who died of diabetes, but was free from syphilis and had had three healthy children by a former wife. This marriage resulted in 16 pregnancies, four being abortions and four dying at an early age; two others became grandmothers one of whom had a strongly positive W.R. and married a healthy individual, giving birth to seven children, three of whom died at an early age, one had spinal neurasthenia, another died of oedema of the glottis, and a third had rickets; the remaining child, who was clinically healthy, yet had a weakly positive W.R., married a healthy man and had three children, one of whom suffered from dwarfism, another from hernia, the third being as yet unborn. Of the second generation, three became mothers; one having a weak positive W.R. gave birth to two normal children and to one mentally deficient and one with a weak positive W.R. The second mother having a strongly positive W.R. had two children, one of whom died at the age of 2 years from convulsions, while the other was apparently normal. The third mother had a strongly positive W.R. and gave birth to four children, one with adenoids and notched incisors, two with adenoids, while the fourth was a degenerate.

Like alcoholism in the Rougon-Macquart family, so syphilis sends down its stigmata to the third and perhaps fourth generation. It may not conform to the classical description, but descends among the offspring and infiltrates everywhere to a more or less extent without following fixed laws and, more often than not, without giving rise to any specific mani-

festations, such as syphiloderma and polyadenia. In Prof. Martelli's opinion syphilis of the second generation, overlooked in the majority of cases, is much more frequent than is generally believed, and if medical men, who have the opportunity of practising for 50 years in small localities among a known population, know how to recognise it, probably even the heredity of the third generation would prove to be less rare, as his own cases show.

THE ROYAL SOCIETY CONVERSAZIONE.

AT the conversazione of the Royal Society held on May 16th there seemed to be fewer striking exhibits than usual, but there were several of particular interest to those engaged in scientific medicine. Recent advance in microscopic technique were illustrated by Mr. J. E. Barnard in a series of microscopes showing leptospira ictero-hæmorrhagica under different forms of dark-ground illumination. This method has hitherto been of limited value because of the small numerical aperture of the objective employed, but with this new apparatus it is possible to obtain the full value of a numerical aperture of 1.2 with a consequent great increase of resolving power. Dr. Leonard Hill and Dr. A. Eidinow demonstrated the effect of temperature on the biological action of light, showing that the lethal power of ultra-violet rays is manifested much more rapidly at 20° C. than at 10° C. Mr. H. Graham Cannon exhibited specimens of the decapitated water-beetle *Hydrophilus*, on which had been grafted the head of the water-beetle *Dysticus*. One specimen had been dissected to show that complete junction of the cut ends of the oesophagus had taken place. Dr. Hele-Shaw demonstrated the action of a new stream line filter in which fluid is forced between parallel sheets of impervious material which can be regulated at will to produce films of such a degree of attenuation that the matter in suspension can be prevented from entering the interstices between the sheets. From the National Institute of Industrial Psychology, through Dr. C. S. Myers, there came charts illustrating the higher output in coal-mines following improvement in illumination. Coal-miners are unanimous in their opinion that "frosted" lamps afford better vision and less eyestrain. Among other interesting exhibits were those shown by the Department of Zoology, British Museum, of specimens of deep-sea cables damaged by sharks who had fed on the animals growing on the outer casings. The specimens showed the teeth of sharks broken off and embedded in the cables. Another exhibit from the same department consisted of articles removed from the stomach of a man-eating crocodile; they were representative of several human beings, though the reptile's last meal was a porcupine. Mr. F. Harrison Glew's levitating magnet attracted considerable attention. It showed a bar magnet of cobalt steel floating by repulsion above the opposed poles of a fixed magnet. During the evening a demonstration was given by Sir Richard Paget of plasticine models, reproducing the English vowel sounds, and Mr. Walter Heape showed cinematograph films, taken at rates of from 2000 to 3000 per second, of the breaking of an electric bulb, and the behaviour of a rubber ball driven against a solid target.

STERILITY IN WOMEN.

THE question of the ætiology and treatment of sterility in women is one of importance not only to the individual, but also to any State. Certain inquiries recently carried out by gynaecologists in Germany are of more than local interest. Dr. Ludwig Nürnberger,¹ of Hamburg, has recently reported the results of these inquiries. Stress is laid on the importance of establishing a diagnosis of the condition responsible for the sterility before any treatment is

¹ La Pediatria, vol. xxxi., N. 6, 1923.

¹ Deutsche medizinische Wochenschrift, March 30th and April 16th.

commenced, as thereby much time and costly procedures may be saved, both to the patient and to the practitioner. In this respect it is most important to determine the patency of the Fallopian tubes. Excellent results have been reported in the last few years on the use of the passage of gas through the tubes to diagnose their patency. Rubin² reports 67 cases in which he introduced gas into the peritoneal cavity via the uterus and Fallopian tubes, thereby demonstrating that one at least of the tubes was patent. He observed no unfavourable results even in cases of chronic pelvic inflammation, but he does not advise this method in patients suffering from acute inflammatory processes. 250-300 c.cm. of oxygen are sufficient for the purpose, and with this quantity the disturbance to the patient is negligible, and she may continue her daily work after the examination; the discomfort produced by pneumo-peritoneum with larger quantities of gas is entirely avoided. The presence of gas in the peritoneal cavity is ascertained by radiographic examination. It has been shown by Seitz that during the premenstrual, menstrual, and postmenstrual periods, and after parturition the tubes are physiologically impermeable to gas, and therefore the examination must be carried out in the intermenstrual period. The results of these examinations reveal that mechanical obstruction in the tubes occurs much more frequently than was formerly supposed; Seitz and von Graff maintain that no woman ought to be operated on for sterility until the patency of the tubes has been established. Dr. Nürnberger has also used coloured fluid passed through the tubes under pressure from the uterus, and has observed the fluid emerging from the abdominal os during laparotomy. Apart from pure mechanical obstruction to conception, the part played by the internal secretions has of latter years been recognised, and the relation between adiposity and sterility has long been known. Kestner and Plaut³ have distinguished, by means of estimations of metabolism, three forms of adiposity—namely, the pituitary, the thyroid, and the ovarian; further they have shown that the adiposity observed after atrophy of the ovaries or after castration resembles that of the pituitary form, and that therefore it is unlikely that there is a pure ovarian form.

Operative treatment is reviewed under four headings—viz.: (a) Dilatation of the cervix; (b) correction of faulty positions; (c) removal of fibroids, polypi, and repair of lacerations; and (d) renewal of the patency of the tubes. Although dilatation of the cervix is condemned by some on the ground that if the external os is large enough to transmit a red blood corpuscle (7.5μ) during menstruation, it must also be large enough to allow of the passage of spermatozoa (2.3μ), yet in practice it is well known that pregnancy in many cases follows rapidly on dilatation. In the reports received by Dr. Nürnberger there was some difference of opinion on the technique of the dilatation, some authorities advocating simple dilatation, while others combined this with incision of the cervix, and others again used incision only. Several maintained that preliminary dilatation with laminar tents always led to catarrhal salpingitis. The figures of results given are various, and in many cases no figures are quoted, but Reifferscheid reported 17 cases with four successes after dilatation, and 28 cases with eight successes after dilatation combined with abrasion of the cervical mucous membrane. Kehrer had 22 successes out of 48 women treated with tent dilatation. Menge and Fehling emphasise the importance of simultaneously dilating the uterine cavity giving as the rationale for the procedure the view that cervical stenosis is often combined with infantilism of the body of the uterus, and that the mucous membrane is insufficiently developed for the embedding of the ovum. Prolonged packing of the cavity with gauze produces a high degree of hyperæmia, which leads to an increase in the development of the mucous membrane, thereby providing the necessary nidus for

the process of embedding. Corrections of faulty positions of the uterus appear to play but little part in overcoming sterility, and are only undertaken in exceptional cases, for retroversion is either part of a developmental anomaly, or is the result of an inflammatory process, and in either case is not directly the cause of the sterility. Removal of fibroids and polypi and repairs of lacerations show excellent results in cases of sterility (arising in the latter case after parturition). The occlusion of the Fallopian tubes lies usually at the abdominal os, and is not only secondary to gonorrhœal and puerperal infection. It may also follow appendicitis, chronic constipation, and bleeding from a ruptured follicle. Two forms of occlusion can be distinguished—namely, simple closure of the os by adhesions, and closure by invagination of the fimbria, but whether the os is remade by freeing the adhesions or by making a new opening, there is always a danger that reformation of adhesions will occur, and the operative results are very disappointing.

The composition of the vaginal secretion has been much disputed in relation to its hyperacidity and consequent injurious effects on the spermatozoa, but the general consensus of opinion seems to be that alkaline douching has little effect, and that, in fact, as the spermatozoa are usually deposited close up to the cervix, the vaginal secretion can have but little effect on them. Organotherapy has proved useful in cases where the sterility can be traced to a deficiency of one of the internal secretions, of which the ovarian is but rarely at fault. The ovarian insufficiency is often secondary to one of another gland, such as the thyroid or the pituitary. Treatment by various baths is sometimes followed by good results, and massage, diathermy, pelvithermy, and X rays are advocated by some. On artificial fertilisation the questionnaire revealed nothing new. Adverse views are easily explained by the fact that there can be no certainty of bringing a living spermatozoon in touch with a living ovum in the upper genital passages. Practically the only condition in which the practice is permissible is in those cases of abnormality in the male when the spermatozoa are unable to reach the vagina. Dyspareunia may play a great psychical part in the prevention of conception and should be corrected wherever possible.

THE AETIOLOGY OF DEFORMED JAWS.

SOME points in the aetiology of jaw deformities are discussed in an addendum by the assistant school medical officers and school dentists to the annual report for 1922 of Dr. J. T. C. Nash, county medical officer of health and school medical officer for Norfolk. The most common jaw deformities found in Norfolk are (1) narrowing and increase of height of the palatal arch, and (2) undue prominence of the incisor teeth; the former was generally associated with mouth-breathing due to nasal obstruction, and the latter with the use of too much soft food in infancy, and the habit of sucking thumbs, comforters, or "dummies." The most illuminating observations were those of Mr. P. Millican, school dentist. He found a large percentage of abnormal jaws in children living in damp and low-lying places, where the soil consisted of clay, marl, or other impervious beds. Such conditions led to catarrhs and nasal obstruction, mouth-breathing, usually aggravated by enlarged tonsils and adenoids, resulting in mal-development of the floor of the nose and roof of the mouth. Children born and living on high sites or on the sea front were more free from nasal obstruction and consequent narrowed palatal arches than those living in villages lying near the Broads and rivers. Mr. Millican explains that Norfolk is divided into two main sections of geological formation along a line drawn roughly from north to south of the county. On the west of this line is found the chalk; on the east is found a series of strata called the Norwich Crag. This formation is only interrupted by alluvial beds of clay and gravel deposited by various rivers. It

² Jour. Amer. Med. Assoc., September, 1911.

³ Deut. Arch. f. Klin. Med., M. 139, p. 285.

consists of alternate laminations of sands, clays, and pebbly gravels, and is therefore impervious or not always capable of good natural drainage. The chalk, on the other hand, is a pervious rock capable of good drainage. He has noticed a striking difference in the number of cases showing jaw deformity between the children living in the east and those on the west of this line, there being a higher percentage of abnormality on the east side. Thus it was found that the percentage of abnormal palates was under 10 per cent. in some parts and under 15 per cent. in all chalk districts, while it was over 20 per cent. in all the Norwich Crag districts where the soil was clay and under 20 per cent. in only one district where there was gravel. The Norwich Crag only outcrops in the western portion in one place, and covers about three square miles. Most of the children living in this section have abnormal palates. Dr. Nash concludes that Mr. Millican's observations justify placing the probable causes of jaw deformity in Norfolk in the following order of precedence: (1) Locality and environment; (2) habits, "comforters," and thumb-sucking; (3) ignorance or poverty or lack of common-sense on the part of parents; (4) heredity and congenital causes.

MEDICAL EDUCATION IN U.S.A.

WE are kept well informed of the state of medical education in the United States of America. In the *Journal of the American Medical Association* for April 28th were published, for the twentieth consecutive year, statistics based on official reports of examinations conducted by State medical boards, and of registrations by reciprocity and other methods. Increasing support and coöperation from the secretaries of State licensing boards has, during the 20 years, enabled those responsible to make these statistics accurate, reliable, and of great importance in relation to medical education and qualification. The number and qualifications of physicians admitted to examinations, the character of the colleges, the numbers registered and rejected, and the percentages are so arranged that the facts regarding any one college or State can be compared with those relating to other colleges or States. In some States there is evidently satisfactory protection of the public from practice by illiterate and incompetent physicians, whilst in others this protection fails in varying degrees. From the point of view of the prospective student, one table, showing the degree of recognition afforded to diplomas granted by certain medical colleges in States other than their own, is of especial importance. Sixty-one, or 75 per cent., of all medical colleges in the U.S.A. have complete recognition in all States. During the ten years in which this particular table has been published, the percentages of fully recognised colleges has risen from 29.0 to 75.3. Seven other colleges have now against them a few instances of non-recognition due to technicalities in State Medical Board requirements. The diplomas of the remaining 13 colleges are not recognised in from 9 to 47 States. It is evident that graduates of low standard medical colleges will flock to the States where less discrimination is exercised, and these States must remain as fields for inferior medical practice until they adopt more stringent regulations. All States except Colorado now require that applicants must have graduated from a medical school; all States require an examination of all applicants; 47 States have and are using authority to refuse recognition of low-grade medical colleges; 44 States have established reciprocal relations with other States; 10 States require a hospital internship as an essential for the licence, and all but two States—Arkansas and Connecticut—have abolished their separate boards of eclectic medical examiners or have limited their authority. In Connecticut, in 1922, the eclectic board licensed 79 physicians, 39 of whom graduated from low-grade medical colleges, and for 18 no data are found in the official files of medical colleges to show that they graduated anywhere.

The eclectic board not only examined the graduates of eclectic schools, but evidently admitted all others who applied, the Connecticut law to the contrary notwithstanding. In Arkansas, out of 18 candidates licensed by the eclectic board, 17 were graduates of low-grade medical schools. Another problem is that of the licensing of osteopaths, who during the past six years have been admitted to examinations and licensed to practise by a few boards. The objection to this is not that these candidates are osteopaths, but that they are not required to present educational qualifications equal to those demanded of physicians. Inspection shows that osteopathic colleges lack properly equipped laboratories, expert instructors, and clinical facilities, and in the instruction the osteopathic idea is so emphasised that other valuable therapeutic measures are neglected. Despite these serious deficiencies in instruction, 74 osteopaths were licensed as physicians during the year under review. Another table shows that of the 29,338 physicians licensed during that period whose qualifications were obtained in classified colleges, 23,234, or 79.2 per cent., were from Class A medical schools, while only 4202, or 16.7 per cent., were from Class B schools, and 1902, or 4.1 per cent., were from Class C schools. The percentage of those rated in Class A colleges is increasing each year, while the percentages of those from Class B and Class C colleges are decreasing. To sum up: these statistics show for each medical school what improvements are essential if its graduates are to succeed in State board examinations, what State boards are requiring as a minimum of preliminary education, and in what States the boards refuse to examine its graduates. To each State board they show the qualifications of the physician licensed as compared with those licensed in other States, and the further improvements which are needed in its educational standards and methods of examination. Owing to political conditions and other factors, standards in certain States fluctuate considerably; but lessened confusion in licensing is general throughout the country, and continuous publicity has led to a general improvement and a greater uniformity in methods of examination.

CASTRATION OR EPIDIDYMECTOMY FOR TUBERCULOSIS OF THE EPIDIDYMIS?

AT one time, and not very long ago, almost the only operative treatment for tuberculosis of the epididymis consisted of removing the whole testicle. There is much to be said for this operation, which enables the surgeon to avoid incising diseased tissues. But even unilateral castration is a mutilating operation and when, as not infrequently happens, the epididymis on the opposite side becomes involved the surgeon who prefers castration to epididymectomy is likely to rob his patient of very important internal secretions. These and other considerations have led Dr. G. Söderlund¹ to compare the immediate and late results of the two operations, and his statistics deal with the period 1914-20, during which 51 patients were operated on for tuberculosis of the epididymis in a hospital in Gothenburg. In this period unilateral castration was performed in 31 cases and epididymectomy in 24, and in a certain number epididymectomy was first performed, being followed by castration at a later stage in the same case. Dr. Söderlund's preference for epididymectomy is shown by the fact that most of the castrations belonged to the earlier years of the period under review. Only in 20 per cent. of the castrations was the patient discharged from hospital with a fistula, whereas 5 per cent. of the patients on whom epididymectomy was performed still had fistulae on discharge. This eloquent proof of the disadvantages of dividing structures in the neighbourhood of, or involved by, tubercle bacilli. But the ultimate results were if anything in favour of epididymectomy. It was found that si-

² Butterworth and Co. 1923. 15s.

¹ Acta Chirurgica Scandinavica, 1923, vol. lv., fasc. v.-vi.

of the 37 patients who had undergone castration had died within three years of the operation, and six had developed tuberculosis in the epididymis on the opposite side. Of the patients undergoing epididymectomy, 20 were subsequently traced, and of the three who had died, one had died after epididymectomy followed by castration. Only in two cases had the testicle itself to be removed after epididymectomy because tuberculosis had invaded the testicle, and only in two cases were fistulae found in the scrotal scar on re-examination. It is evident from this series of cases that when epididymectomy alone is performed, the chances of the testicle on the same side becoming tuberculous are comparatively small, so small, in fact, that Dr. Söderlund considers they should be ignored when choice is made between the two operations. His most convincing argument, however, on behalf of epididymectomy is that chronic inflammation of the epididymis is often not tuberculous. Yet such benign epididymitis may be clinically indistinguishable from tuberculous epididymitis. In as many as 13 cases in the period under review the diagnosis of tuberculous epididymitis proved, on microscopic examination after operation, to be mistaken. Doubtless, as Dr. Söderlund points out, several of these cases represented benign staphylococcal infections, and would have cleared up of themselves.

PRIMARY CARCINOMA OF THE URETHRA.

THE rarity of primary carcinoma of the urethra, of which Dr. Harry Culver and Dr. N. K. Foster,¹ of the Department of Cystoscopy, Skin, and Venereal Diseases of the Cook County Hospital, Chicago, have recently seen three examples, has induced them to record their observations with a review of the literature. The first case appears to have been reported by Bowin in 1833, since when the writers have collected a total of 120 cases. The incidence is highest in the female sex. The age-period between 40 and 60 appears to be the most susceptible in both sexes. In the female sex carcinoma is undoubtedly an important aetiological factor, although mentioned in only about 10 per cent. of the reported cases. This is especially true of cases which have been frequently cauterised, chronic irritation playing an important part in the malignant degeneration of the tumours. In the male the predisposing causes are trauma, leukoplakia from chronic urethral irritation, and stricture formation, the latter occurring in about 50 per cent. According to Rizzi, the sites most frequently affected are the cavernous (52 per cent.), the bulbous urethra (25 per cent.), and the membranous and prostatic portions (22 per cent.). The onset is usually insidious, and it is not until the growth is well established that pain, disturbance of micturition, and hæmorrhage become prominent. The pain is usually not intense, but radiates into the thigh, pelvis, and vaginal fundus. There is sometimes dyspareunia, especially if ulceration is present. Urinary disturbances are constant, consisting in frequency of micturition, pain in the act, retention, and, finally, complete or partial incontinence. The general condition is not affected until the local process has become very advanced. Three forms of the disease may be encountered: the polypoid or papillary form, the ulcerative, and the infiltrative type. The diagnosis is made by the history, physical findings, and biopsy. In the male the condition must be differentiated from stricture, with extravasation or urinary fistula. The prognosis depends on the stage which the cancerous condition has reached when the patient is first seen and the associated morbid condition. In any event, it is serious, owing to the rapid course of the disease and the danger of recurrence. Treatment consists in operation or the application of physical agents, such as radium or mesothorium. The operative methods employed have been partial resection of the urethra, with suture of the urethral extremity to the mucosa

of the vestibule or vulva, or total resection of the urethra, with the establishment of a neovaginal or suprapubic stoma. Extirpation of the involved inguinal glands has been attempted in ten cases. The use of radium and mesothorium is suitable for inoperable cases. The combination of operation with the use of radium has been effective in some instances. The writers' first case was in a woman, aged 65, who had suffered from pain and frequency of micturition for the last two or three years. Death occurred without operation, and the autopsy revealed primary carcinoma of the urethra, with extensive metastasis to the neck of the bladder and bilateral pyonephrosis. In the second case, which was in a woman, aged 35, the illness was of about seven months' duration, the first symptom being dyspareunia, followed two months later by vaginal protrusion, pain about the bladder, and frequent urination. An elongated, rounded mass was felt in the region of the urethra, extending back into the vagina. The patient was treated with radium, and two months from the last application the general condition was excellent, the pain had subsided, and the bladder was constantly emptied by a vesico-vaginal fistula which had been present for six weeks. The third patient was a man, aged 71, who had accidentally scalded his penis 11 months previously. Three months later he observed a hard growth on the under surface of the organ, and within the last fortnight he had had difficulty and pain on micturition. A diagnosis of primary carcinoma of the urethra was made and confirmed by histological examination after radical amputation of the penis. When the patient was seen six months later there was no sign of recurrence.

ULCUS EPIDEMICUM.

IN a paper read before the Beirut University Pathology Society, Dr. Walter Book Adams,¹ professor of dermatology in the American University of Beirut, remarks that the terms tropical endemic or epidemic ulcers have been used loosely and vaguely for a variety of diseases, such as tuberculosis cutis, syphilis, frambœsia, or oriental button. In the present paper he describes under the name of ulcer epidemicum an epidemic of ulcers which invaded Syria, a subtropical country, during the war. His attention was first drawn to the ulcers in 1916 on the legs of men suffering from starvation œdema, where the sores resembled hospital gangrene in their rapid, shallow, phagedænic growth, the foul odour of the pus, and the difficulty in getting them to heal. In 1917 there were more cases, but fewer of the phagedænic type, examples being found in abundance along the coast from Gaza to Alexandretta. In 1919 the outbreak was prevalent among the poor in inland cities such as Jerusalem, Nazareth, Damascus, Homs, Hamath, and Aleppo. In 1920 there was a marked diminution in the cases, and by 1922 only occasional ones were seen. The ulcers usually appeared in the late spring after the rains had ceased, being essentially a dry-weather disease, and never beginning in the rainy season. They were almost invariably found on exposed parts of the body, the principal sites in order of frequency being the legs, ankles, feet, hands, and forearms. The knees and elbows were rarely affected. The ulcers were usually simple, but occasionally they were grouped. The lesion began as a small itching papule, which rapidly increased in size and became very painful. In one or two days it broke down forming a raw angry ulcer with a sloughing surface, discharging a thick brownish foetid pus. If untreated the lesion became a chronic ulcer, lasting for years with increasingly hard sclerotic edges. Bacteriological examination showed a symbiosis of a fusiform bacillus and a spirillum as in Vincent's angina, associated with numerous cocci. Treatment consisted in stimulating the tissue to a healthy reaction and granulation, and protecting it from further invasion of cocci, flies, and dirt.

¹ Surgery, Gynecology and Obstetrics, April, 1923.

¹ Archives of Dermatology and Syphilology, May, 1923.

QUINIDINE IN AURICULAR FIBRILLATION.

EXPERIENCE is steadily accumulating as to the value of quinidine sulphate in the treatment of auricular fibrillation. Great claims often accompany the introduction of a new remedy which later proves not to meet them, but the specific action of quinidine on the auricle can be demonstrated by graphic records. The dangers of its use were magnified in earlier reports partly because it was then used in more than sufficient doses, and partly because it was tried in unsuitable cases. That it is a valuable adjunct in the treatment of heart disease is becoming steadily apparent, and the observations of Dr. J. G. Emanuel in this issue of THE LANCET add to its position. It is not claimed by cardiologists that quinidine will approach the almost universal application of digitalis in cardiac therapeutics, and we should like to emphasise the fact that digitalis holds exactly as high a place in the treatment of heart failure as ever it did, its employment having become more carefully selective. Indeed, quinidine has no direct value in heart failure, and most of the untoward results are attributable to its use when failure is present. The function of quinidine is to restore the normal regular rhythm to a heart showing auricular fibrillation, and to that extent, and to that extent only, to improve cardiac efficiency. The attempt should be made when failure is in abeyance or when failure has been allayed by digitalis. In a word, digitalis combats heart failure, and quinidine abolishes auricular fibrillation which disposes to failure. Safety is attained if suitable cases are chosen and a moderate daily dose is reached by steps so that an idiosyncrasy towards the drug would be promptly recognised. So guided the danger is slight, but successful results will depend largely upon the care and skill with which the action of the drug upon rhythm is followed day by day during the course of treatment.

METHODS OF SLAUGHTER.

WHERE animals are killed periodically in an enclosed building there would always appear to be an apprehension of death by them. Fortunately the terror can never be so great as that of the human being who is destined to be hanged on the morrow. If fear before slaughter is to be reduced, in the case of animals, to a minimum, the sight, sound, and as much as possible, the smell of death should be hidden from the victims' senses. In other words, each animal should be separately and individually slaughtered. The slaughtering in batches and in sight of each other of pigs and sheep has always appeared to us callous and barbarous. The Jewish method of slaughter, which consists in severing the blood-vessels of the neck with a sharp knife, seems to be quite humane. It has the advantage that the animal is effectively controlled before the method of despatch is brought into operation. Providing the control is carried out humanely, as it invariably is, this mode of killing would appear quite merciful. In Pamphlet No. 2, on the Jewish Method of Slaughtering Animals, published by the Board of Deputies of British Jews, the quoted opinions of 285 veterinary surgeons coincide in declaring that the Jewish method of slaughter is devoid of cruelty. It is true that the majority of these opinions are from German sources, but they are those of practical men of good standing. Most experts agree that the animal becomes unconscious within three seconds after the throat is cut, and the real matter at issue seems to be whether the pain produced by a severe blow that smashes the cranial bones and penetrates the brain is more or less than that produced by a sharp knife making a deep incision. Meanwhile only the introduction of a practicable way of anaesthetising animals before slaughter, non-injurious to the flesh as human food, would satisfy everyone.

THE Croonian Lectures on the Rôle of Fats in Vital Phenomena will be delivered on June 7th, 12th, 14th, and 19th, at 5 P.M., at the Royal College of Physicians of London, Pall Mall East, by Prof. J. B. Leathes.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXI.

THE TREATMENT OF ANTE-PARTUM HÆMORRHAGE.

THE first duty when faced with a case of ante-partum hæmorrhage, whether it be slight or severe, is to try to make out whether or not the placenta is attached to the lower uterine segment, since the management of the case after the first hæmorrhage will proceed upon different lines according to the position of the placenta. The determination of this point may be very easy or very difficult. If there have been labour pains and the internal os is open, a partially detached portion of placenta may be felt on passing the finger into the uterus, and this will settle the matter. But if the patient has had no labour pains and is a primigravida, the cervix will be closed and the problem then has to be approached in a different way. No assistance can be obtained from the mode or time of onset of the bleeding, the period of pregnancy, or the character and extent of the first attack of hæmorrhage. Examination of the urine may, however, give valuable help. The differential diagnosis cannot be disposed of in a word and at the first examination the diagnosis must often remain in doubt, but in general terms it may be said that if the head presents and is readily recognised per vaginam, and if the urine contains albumin, the case is almost certainly one of accidental hæmorrhage. If, however, the breech lies below and vaginal examination yields little information, and the urine is normal, the case is probably one of placenta prævia.

Common to both conditions is the need of what we may call for simplicity "hospital treatment"; except in patients of the luxury classes, immediate removal to hospital or nursing home is essential.

Treatment of Hæmorrhage Before Labour.

The immediate treatment of hæmorrhage which is not accompanied by labour constitutes a fairly simple problem. In most cases the first hæmorrhage is moderate in amount and the patient should be put to bed, given morphia (gr. $\frac{1}{4}$ to $\frac{1}{2}$), and detailed obstetric examination should be deferred until the bleeding has ceased. A catheter specimen should be examined and an effort to establish the differential diagnosis should be made.

Accidental Hæmorrhage.—Let us suppose a seven months pregnancy, with head presentation, some albuminuria, and slight œdema of the feet. It is a case of accidental hæmorrhage, the essential factor of which is probably a mild toxæmia. With careful prophylaxis there is an excellent chance that the bleeding will not recur. The patient should be kept in bed and careful eliminative treatment carried out. The diet should contain little protein; diuresis should be produced by drinking large quantities of water, and the bowels should be caused to act loosely twice a day by saline purgatives. The urine should be examined daily, the patient being kept in bed for a week after the bleeding has ceased. Even if no further hæmorrhage occurs special care is required for the remainder of pregnancy, the important points being to secure free action of all channels of elimination and to watch for albuminuria. The prognosis is good. If despite prophylactic treatment, or in cases where this has not been carried out, recurrence of the hæmorrhage occurs without labour, the same treatment should be applied, and the patient kept under close observation for a longer time. Her general condition will probably deteriorate with each attack of bleeding, for apart from the results of loss of blood, there is the toxæmic factor to be considered.

The rare but very grave condition of concealed accidental hæmorrhage probably would never be seen

at all if prophylactic treatment were carried out in all cases after the first attack of bleeding.

Placenta Prævia.—The management of cases of placenta prævia can be sharply distinguished from the above. (1) No prophylactic treatment is practicable, for the bleeding results from a condition entirely out of our control; (2) recurrence of the hæmorrhage is inevitable, and each recurrence tends to be more serious than the preceding one. It follows that we cannot afford to temporise as we may do in a case of accidental hæmorrhage. As a rule it is inadvisable to wait for the recurrence of the hæmorrhage.

Two courses are open in a case of placenta prævia when labour has not begun: one is to induce labour, and the other is to perform Cæsarean section. Cæsarean section is indicated if the patient is a primipara, if the child is alive and of at least 36 weeks' development, and the placenta can be felt all round the margin of the internal os (central placenta prævia). Any one of these conditions taken alone constitutes an arguable case for the Cæsarean operation, but the presence of all three should leave no doubt in our minds whatever. On the other hand, induction should be practised if the patient is a multipara, if the child is dead or non-viable, and if only one side of the os is occupied by the placenta. Again, any one of these conditions taken alone may be held to constitute an indication for induction in preference to Cæsarean section.

The principle underlying these indications is that induction is to be preferred (1) when the local conditions are such as to favour easy delivery (e.g., parity), (2) when the amount of hæmorrhage is not likely to be extreme (e.g., in lateral placenta prævia), and (3) when the child is dead or its survival is already jeopardised by a high degree of prematurity. When the converse conditions are present Cæsarean section allows of rapid delivery, with less hæmorrhage, and a fair chance of survival of the child.

Method of Induction in Placenta Prævia.—Before induction external podalic version may be required, since a breech presentation allows readier control of hæmorrhage during labour than a vertex. For a primigravida with closed cervix the intra-uterine bougie method, performed with strict antiseptic precautions and under anaesthesia, is probably the best. If, however, the patient is a multipara, and the internal os admits the tip of the index finger the decision is not so easy. If the membranes can be felt they should be ruptured with the finger or with forceps. If they cannot be reached and the placenta appears to cover the os completely, it is best to tear through the placenta, perforate the membranes, and pull down a foot into the vagina. This is practicable with one finger only, but is much easier if the cervix will admit two fingers. Traction can then be made in the manner to be described below.

The Conduct of Labour with Ante-partum Hæmorrhage.

Since in most cases the labour is premature, the child's chances of survival are small, and preservation of the mother's life becomes the first consideration. Cæsarean section may be done early in labour when the indications for it detailed above are all present. Generally speaking, however, accidental hæmorrhage is best treated by rupture of the membranes followed by evacuation of a considerable quantity of liquor amnii; placenta prævia is best treated by pulling down the half breech into the cervix after preliminary podalic version if required. In cases of central, or approximately central, placenta prævia rupture of the membranes is not to be recommended, since bleeding is likely to be too severe to be controlled by the pressure of the advancing head. After tearing through placenta and membranes, and pulling a foot down into the vagina, gentle and continuous traction is applied, and labour always proceeds briskly; moreover, the half breech plugs the lower uterine segment and completely controls hæmorrhage. A weight of 2 lb. may be attached to the foot,

but the mother must then be left to deliver herself. Even if the cervix is sufficiently dilated to allow of instant delivery, the temptation to effect this should be resisted, for it is essential that the uterus should have regained its contractility when the moment comes for the delivery of the child. Full use of any interval should be made in the application of restorative measures; in serious cases infusion of blood is the best, but should no donor be available gum saline solution can be used. When the uterus is acting well and the presenting part has passed through the pelvic brim, 0.5 c.cm. pituitrin may be given.

An alternative procedure to podalic version is the use of de Ribes's bag, but in my opinion this is only suitable for cases in hospital when expert aid is always instantly available, and then only under limited indications.

Plugging the Vagina.

Plugging the vagina I regard as a useful emergency measure: (a) As a preliminary to removal of the patient to hospital in an urgent case; (b) in either variety of ante-partum hæmorrhage, to check bleeding while other methods are in preparation. Further, in many cases of accidental hæmorrhage, plugging the vagina combined with previous rupture of the membranes is the method of choice, and no other interference may be required. Further, in cases of concealed accidental hæmorrhage, vaginal plugging combined with active restorative measures, will often give the patient her only chance of recovery.

The technique of vaginal plugging demands a word. Unless it is thoroughly done the bleeding will continue unchecked, and unless the strictest precautions are observed sepsis will follow. The packing must be so carried out that the upper part of the vaginal canal is tightly distended and the cervix completely surrounded by the packing material; a vaginal speculum, a long pair of forceps, and a good light are required, and in primiparae an anaesthetic. When the vaginal vault has been filled, the packing should be pushed upwards with the finger and moulded tightly round the cervix. Unless done in this way it is a waste of time to pack the vagina for hæmorrhage. The vulva should first be shaved and disinfected with iodine or violet green, and the vaginal walls also disinfected. The best material for packing is sterilised "bismuth gauze"—i.e., gauze impregnated with subgallate of bismuth; this can be obtained in 12-yd. lengths of 2 in. wide, and the end of the first length used is tied to the next so as to make a continuous pack. It is expensive but can be relied upon to show no sign of putrefactive changes for 24 hours. A useful domestic substitute is made from long strips of sheeting or tablecloth, cut to appropriate width, and boiled for an hour before use. Packing should always be removed in 24 hours if delivery has not taken place, and some other method of controlling hæmorrhage must then be adopted if necessary. A large proportion of cases in which vaginal packing is adopted in hospital practice show a febrile puerperium, and there is no doubt that the risks of infection which are associated with it are difficult to obviate.

Summary.

1. Prophylactic treatment after the first attack of bleeding is strongly advised in accidental hæmorrhage, but is inadmissible in placenta prævia.
2. Certain cases of placenta prævia are best treated by Cæsarean section after the first hæmorrhage.
3. Cases of placenta prævia in labour are as a rule best treated by podalic version and pulling down a leg.
4. Dilatation of the cervix by de Ribes's bag is not recommended.
5. Most cases of accidental hæmorrhage and certain mild cases of placenta prævia are best treated by rupture of the membranes.
6. Plugging the vagina after rupture of the membranes is useful in many cases of accidental hæmorrhage.

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Special Articles.

THE CONSTANTINOPLE BOARD OF HEALTH.

A BRIEF HISTORICAL SURVEY.

By F. G. CLEMOW, C.M.G., M.D.,

FORMER BRITISH DELEGATE TO THE BOARD AND PHYSICIAN TO
H.M. EMBASSY, CONSTANTINOPLE.

PART I.

AMONG the innumerable minor effects of the late war must be counted the disappearance of the Constantinople Board of Health—a body which for over three-quarters of a century had directed the Turkish maritime sanitary administration, and had, under the International Sanitary Conventions, been charged with the task of safeguarding Europe from the importation of disease from the East. An institution that, for so long a period, had endeavoured to carry out so responsible a task, may well merit an obituary notice, and the present moment seems an opportune one for giving some account of its origin and history. For, while the Board ceased to exist effectively as an international body after the autumn of 1914, its abolition has not even yet been formally admitted or recognised by the Powers other than Turkey. The question of the future organisation, destined to some extent to take its place, was discussed at length in the first Peace Conference at Lausanne, with results that are still under consideration and cannot, therefore, for the present be made public; but, when the time shall come for their being made known, a right understanding of the problems involved will only be possible if based on a knowledge of their past history. The present survey makes no pretence to be a complete picture of the Board's work—a much larger canvas would be required for any such attempt; it can only lay claim to be a greatly condensed account of the origin of an important sanitary institution and of the methods by which it endeavoured to carry out its international mandate.

The Origin of the Board.

Some obscurity attaches to the birth of the Board, but a study of contemporary original documents has made it possible to piece together the following sketch of its origin and its later developments. The year 1839 has sometimes been given as the date of the Board's coming into existence, but some form of mixed Sanitary Council was unquestionably sitting in Constantinople in 1838. The still earlier attempts of the Turkish authorities to establish a system of quarantine on their frontiers may be rapidly passed over. It is claimed by the Turks that, on the occasion of the great cholera epidemic of 1819, some form of quarantine was applied to ships arriving in the Bosphorus; and that in 1836 a Turkish Quarantine Board, composed of three members, was already in existence. Then, in 1837, mention is found of a Turkish proposal to establish quarantines in the Dardanelles and, in December of the same year, of a further proposal to modify the then existing quarantine laws in Crete. Objections were raised in various quarters—including the Committee of the Privy Council for Trade—to the imposition of quarantines in the Dardanelles except under the strongest necessity.

In April, 1838, the Sublime Porte addressed a circular Note to the heads of missions in Constantinople, formally announcing the intention of the Sultan (Mahmoud II.) to set up a system of quarantines in his empire. Couched in the somewhat flowery language common to proclamations of eastern potentates in those days, the Note stated that His Majesty the Sultan, wishing to calm the fears that "the contagion" (i.e., of the plague), then manifesting itself from time to time in Constantinople, must inspire in the public, had ordained that the system of quarantines should be adopted in his

realms. The mode of applying such quarantines, it was added, was then being considered, and the nature of the sanitary measures decided on was to be indicated in a later communication. On May 19th, 1838, the *Moniteur Ottoman*, the official gazette of the time, published a long article, setting forth in great detail the philosophical and religious reasons for opposing rational measures, such as quarantines, to the calamities with which it has pleased the Almighty to afflict mankind. The article is too long to quote, but it is a document of no little human interest. On May 22nd the Turkish Minister for Foreign Affairs addressed, as promised, a second communication on this subject to the representatives of the Powers. In this the decision to establish quarantines was reaffirmed; the necessity of protecting from contagion, and "if necessary disinfecting" the city of Constantinople was emphasised; cordons and lazarets were, it was stated, to be established; infected places and effects were to be disinfected; cases of plague were to be notified; no dead body was to be buried, no matter what the cause of death, without being inspected by the authorities and a permit given, and so forth. The authority charged with carrying out these measures was spoken of as the "Direction de la Quarantaine," and this appears to have been the earliest public health authority brought into existence in Turkey.

Earliest Regulations of the "Conseil Supérieur de Santé."

On endeavouring, however, to obtain consent to these proposed measures, it at once became evident that their application would be contrary to the Capitulations—under which Turkish officials were unable to visit the domiciles or board the ships of foreign nationals unless accompanied by a consular representative of the country concerned; and this was clearly pointed out in the replies of the Powers to the Turkish Note. In July or August, 1838, some form of Sanitary Council or Health Board was actually sitting, and a British dragoman (Mr. Charles Wood) and others were assisting at its meetings. The council was already spoken of as the "Conseil de Santé," or Board of Health; a little later it became the "Conseil Supérieur de Santé"—and this title it continued to bear throughout the rest of its existence. A draft "règlement" was drawn up by this body in the autumn of 1838, and was considered by representatives of the foreign missions in November. In this document a quarantine of 20 days was demanded even for empty ships; a bill of health was required not only for a ship but for every person on board the ship; a tribunal was proposed for judging cases of infraction of the rules. Ships' manifests, as well as their bills of health, were required to be submitted for examination by the quarantine officials. So strict was the quarantine demanded that it was even proposed to give to the sanitary guards at the lazarets the right to fire on any person attempting to escape. Sanitary offices were to be established at Kavak, near the northern end of the Bosphorus (where a lazaret was actually built later and still exists), and at Gallipoli in the Dardanelles. A temporary lazaret was to be created at Kouléli in the Dardanelles, and certain charges were to be levied on ships until a regular tariff should be drawn up and accepted by the Powers. On land, health officers were to be empowered to enter houses where plague cases existed or were suspected to exist, and to take the necessary measures, if authorised to do so by some member of the Board of Health.

Objections were raised to most of the proposals, more especially to the long quarantines and to the right of sanitary guards to fire on any one attempting to evade them; and it is not clear how many, if any, of the draft measures were actually applied during this period of negotiation—a period which lasted for a considerable time. In the summer of 1839 a fresh effort was made by the Turkish Government to obtain acceptance of its proposals—to which had now been added one to the effect that that Government should

be authorised to adopt and put into execution the sanitary measures, but that these measures should first be suggested by the foreign delegates to the Board. A "Règlement Organique pour les provenances de mer" was drawn up, and signed on June 10th, 1839. The preamble to this Règlement is of sufficient interest to be quoted in full; it is as follows:—

"Les soussignés composant, d'une part, le Conseil de Santé sous la présidence de S.E. Hifzy Moustapha Pacha, de l'autre la délégation étrangère accréditée par les différentes missions, à la demande de la Sublime Porte, près ledit Conseil, s'étant réunis en conférence à l'effet de délibérer sur le choix de système quarantenaire le mieux approprié à cette Capitale contre les provenances de la mer, animés d'un égal désir de concilier, autant que possible, les garanties sanitaires avec les besoins de commerce maritime, ont, après mûre délibération, arrêté de commun accord les résolutions suivantes: (Then follows the text of the regulations)."

From this it is clear that the presence of foreign delegates on the Constantinople Board of Health was brought about at the request of the Turkish Government itself. The regulations contained 19 articles, and one "additional article." It is interesting to note the resemblance of the problems that had then to be faced to those with which sanitarians in the Near East are still confronted. Ships were then, however, as for many decades after, dealt with according to their bills of health and not to the actual state of the ship. Bills of health were either "clean" (*net*), "suspect," or "foul" (*brut*); the corresponding flags to be hoisted were white, black and white, and black. A bill of health was "clean" if delivered 30 or more days after the last case of plague in the port of departure, and such ships received immediate pratique. A "suspect" bill of health was one delivered between 15 and 30 days after the last case; such ships had to do 15 days of quarantine if loaded and 10 if empty. A "foul" bill was one delivered less than 15 days after the last plague case, and for such ships a quarantine of 20 days, if loaded, was required, and 15 days if empty. Ships of the last two categories were required to take on sanitary guards at the Dardanelles or at Gallipoli, if passing up the Straits, and at Kavak if passing down; and only empty ships were allowed to pass the Straits and proceed "en quarantaine." The maximum quarantine for goods was 20 days. Infractions of the regulations were to be judged by the laws in force in European countries, and the offender was to be handed over to his own authorities for punishment. A sanitary tariff was annexed to the regulations, setting forth in detail the taxes to be charged for bills of health and for the "interrogatoire"; the quarantine dues on ships, on persons and on animals; and the charges for disinfection of goods. Ships of war were exempted from all sanitary charges.

This document, it is of interest to note, bore the following signatures: A. Pezzoni, Ed. de Cadalvène, Ant. de Raab, F. Bosgiovich, J. Bosgiovich (delegates); Hifzy Moustapha Pacha (president); Drs. Minas, MacCarthy, Neuner, Bernard, Marchand, and G. Franceschi (members of the Board). It will be observed that not only the delegates but also the members of the Board were, with the exception of the president, of other than Turkish nationality, and for a very considerable period Turkey herself provided no medical member of the Board. About this same period the question of overland quarantines was discussed and regulations were drawn up; but the death of Sultan Mahmoud II., on July 1st, 1839, seems to have led not only to this question being dropped, but also, apparently, to a considerable diminution in the activities of the Board of Health and the quarantine authorities.

The minutes (*procès verbaux*) of the Board—destined in the course of three-quarters of a century to fill some hundreds of large volumes—begin only with the meeting held on Feb. 10th, 1840. The minutes of that meeting fill but half a page of a folio volume. It was not until the "35th meeting," held on August 28th, 1840, that any signatures were attached to the minutes, and it is of interest to note that among the signatures

of those present at that meeting (held 83 years ago) occurs that of Dr. E. D. Dickson, who appears to have been at first intermittently and later permanently the British delegate to the Board until his death in 1900—the year in which I had the honour to succeed him in that capacity and as physician to H.M. Embassy.

The Powers represented on the Board in 1840 were apparently the five Great Powers, Sardinia, and Greece. For the first few years the Board contended against many difficulties and much opposition on the part of the Turkish Government. The latter seems to have regretted having created the institution and to have made considerable efforts to reduce its powers to a nullity or even to break it up altogether. In 1844 the president is said to have attempted to exclude the foreign delegates entirely and to make what remained of the Board "dependent upon his arbitrary pleasure." On the initiative of the British Ambassador, Sir Stratford Canning, the heads of missions in Constantinople made strong representations to the Turkish Government as to its unsatisfactory attitude towards the institution and, as a result, the arbitrary proceedings of the president were checked, and it was agreed that all questions—whether they related to the appointment of medical or other officials or to the administration of the quarantine department—were to be decided by a majority of votes in the Board of Health. Further, a Turkish official in the confidence of the Porte and properly qualified for the task was appointed to take part in the discussion with the delegates and the other European members of the Board.

Such, briefly, was the origin of the composite body which was destined to direct sanitary affairs on the coasts and frontiers of the Turkish Empire for a period of some 75 years—until, indeed, the outbreak of the Great War in 1914. Space will not permit of a detailed account of its history throughout that long period. It passed through many vicissitudes, and at one critical moment of its history, when its action met with the disapproval of the reigning Sultan, the latter threatened to swamp it by the nomination of a large number of Turkish members, sufficient to outvote the foreign element on the Board—a threat analogous to that made a few years ago to a more august body in this country. Throughout the later decades of its existence the Board was composed of eight Turkish members and a varying number of foreign delegates, reflecting the political changes in Europe during that period. At the moment of its extinction in October, 1914, the foreign delegates numbered 13, representing the following Powers: Austro-Hungary, Belgium, France, Germany, Great Britain, Greece, Holland, Italy, Persia, Russia, Spain, Sweden, and the United States of America. Norwegian interests were entrusted to the German delegate.

On May 27th, 1840, a second and more extended "Règlement Organique" was adopted, prescribing the sanitary measures to be enforced, but no similar code defining the composition, attributes, and powers of the Board was ever drawn up. These were, however, gradually more or less clearly defined by means of another international body, of which more will be said later—the Mixed Commission for Revision of the Ottoman Sanitary Tariff. The tariff annexed to the 1840 "Règlement" remained in force until it also was modified by the Commission just named.

Extension of the Work of the Board.

It will be seen, from what has been said above, that the Constantinople Board of Health was originally a local body, brought into existence to meet the immediate menace of a plague epidemic and limiting its aims mainly, if not entirely, to the protection of the Turkish capital. It only later extended its work to the protection of the other ports and frontiers of the Turkish Empire and gradually assumed the many other responsibilities that fell to it during the later decades of its existence. Though it had, as has been shown, a semi-international character from its very

beginning—as regards its composition at least—it was not until some 13 years after its creation that it received any definite international mandate from the Powers in general. But it received that mandate from the earliest moment that the Powers came together in a sanitary conference, and were thus in a position to make any joint utterance on international sanitary matters; and the mandate was confirmed and enlarged by the subsequent Conferences and Conventions. Thus the first International Sanitary Conference, that of Paris, 1851, specifically charged the Board with the execution of sanitary measures in the Turkish Empire, and authorised it to fix the places where such measures would be applied; to publish regulations, based on the Convention; to appoint and dismiss its personnel, and so forth. It required that the foreign delegates on the Board should be appointed by their respective Governments, and should be “as far as possible specialists.” Similar clauses appeared in the (abortive) Paris Convention of 1859. The third Conference, that of Constantinople, 1866, while mainly dealing with cholera from the scientific point of view, incidentally discussed the financial affairs of the Board, as will be shown later. The Vienna Conference of 1874 scarcely mentioned the Board; that of Washington of 1881 was concerned only with yellow fever; the Rome Conference of 1885 was not followed by a Convention; and those of Venice, 1892, and Dresden, 1893, did not deal with the Board's affairs. But the Convention of Paris, 1894 (as also the three later Conventions), prescribed that all pilgrim ships entering or leaving the Red Sea should comply with a “special ordinance applicable to the pilgrimage to the Hedjaz,” to be published annually by the Constantinople Board of Health in accordance with the principles laid down in the Conventions, and this practice was followed by the Board. It further required that the supervision of these measures should be entrusted to a committee, chosen from the Board and to consist of three Turkish members, and of representatives of Powers that had acceded or should accede to the Conventions of 1892, 1893, and 1894. This latter clause was not strictly adhered to; it was, however, the practice of the Board to elect each year a Pilgrimage Committee, composed of one or more Turkish members and of delegates representing the Powers most interested in the Mecca pilgrimage. That committee revised each year the “special ordinance” and endeavoured (rarely, it must be admitted, with complete success) to make it conform in every detail with the pilgrimage clauses of the later Conventions.

The Venice Conference of 1897 was concerned with the serious danger to Europe arising from the outbreak of plague in India and more especially with measures applicable to pilgrim ships. The Convention that followed contained detailed recommendations for the reorganisation of the great lazaret of Camaran (Turkish) and of those of Abou-Saad (Turkish) and El Tor (Egyptian). In this Convention measures were for the first time prescribed for the sanitary protection of the Persian Gulf, and the Constantinople Board was charged with their execution, and with the reorganisation of the sanitary defences of the Turco-Russian and Turco-Persian frontiers. The Paris Convention of 1903, while again confirming the general mandate of the Constantinople Board, contained important clauses prescribing the composition and attributions of the Board, the reduction of the Turkish members from eight to four, and so forth. Unfortunately most of these clauses were not accepted by Turkey, and therefore remained inoperative; they were completely eliminated from the last Convention, that of Paris, 1912. The Conventions of 1894, 1897, and 1903, however, confirmed the financial arrangements of the Board, which are referred to in more detail below.

But there were other duties, not specifically mentioned in the Conventions, which the Constantinople Board was called upon to discharge. It had the sanitary supervision, not only of the great pilgrimage to the Hedjaz, but also of the Shiah pilgrimage and

carriage of dead bodies to Kerbela, Nejef, and the other Shiah holy cities in and near Mesopotamia. Further, although the Board's mandate was in principle limited to the coastal and frontier defences of the Turkish Empire—the interior sanitary defences being in the hands of the Turkish authorities—a special exception was made in the case of the Hedjaz Railway (connecting Damascus with Medina), and for some years before the war the sanitary defences of that line had been provisionally entrusted to the Board until some more permanent arrangement should be come to.

It will be seen, then, that the Board's responsibilities were by no means light. Its mandate covered an immense geographical area—extending from the Turco-Persian and Turco-Russian frontiers on the east to the Albanian coasts of the Adriatic on the west; from the Black Sea coasts of Asia Minor on the north to the shores of Tripoli in Africa and the Arabian coasts of the Red Sea on the south; and including such varied conditions of population, climate, race, and religion as are (or were) to be found in Arabia, Mesopotamia, Asia Minor, Armenia, Syria, Palestine, Crete and the Aegean Islands, Tripoli and the Cyrenaic peninsula, Thrace, Macedonia, and Albania; while in former years it embraced such additional trifles as the territories that have since become the independent states of Bulgaria, Roumania, and Serbia.

(To be concluded.)

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Suppression of Abortion.

THE Chamber of Deputies has adopted a Bill modifying the provisions of Article 317 of the Code Pénal with reference to abortion. Henceforward, whoever, by the administration of certain foods or medicaments, or by manipulation, violence, or any other means, shall have procured or attempted to procure abortion in a pregnant woman, with or without her consent, will be liable to imprisonment for from one to five years, and to a fine of from Fr.500 to Fr.10,000. A woman who has procured abortion on herself, or who has consented to use the methods indicated to her for this purpose, with the result that abortion takes place, will be liable to imprisonment for a period of from six months to two years, and to a fine of Fr.100 to Fr.2000. Doctors, health officers, midwives, surgeon-dentists, pharmacists, as well as medical students or employees in chemists' shops, herbalists, and sellers of surgical instruments, who have indicated, recommended, or practised these methods, will be condemned to the penalties set out above. Those found guilty may, besides, be temporarily suspended or permanently prohibited from practising their profession, according to Articles 25 and 26 of the law of Nov. 30th, 1892, which articles in this connexion are applicable to qualified pharmacists and herbalists, as well as to those aspiring to diplomas. Besides the penalties mentioned, the courts may forbid the person found guilty from residing in a stated neighbourhood for a period of from two to ten years.

It is, unfortunately, to be feared that even the maximum penalty of 10,000 francs and five years imprisonment will still be insufficient to prevent the crime of abortion. Recently a girl, Inda Kriginold, and her lover, Benjamin Kotlar, both Russian subjects and students of medicine, were arrested; they had an excellently equipped consulting room, most comfortably furnished and fitted with all necessary apparatus for preserving the strictest asepsis. They had been practising for many years, and were responsible for over 1000 abortions. In view of the danger to the future of the country, it may be hoped that heavy punishment will be meted out to criminals of this type.

Scottish Medical Students in Paris.

The Scottish medical students at present in Paris were recently received by the Association Générale

des Etudiants, who are now housed in the old Faculty of Medicine. A soirée was organised in honour of the visitors, and was presided over by Mr. Roger, the Dean of the Faculty of Medicine. The day before a trip to Versailles was organised, to which both French and Scottish students were invited, and proved an excellent means of promoting friendliness among the two batches of students.

Neurological International Reunion.

The fourth annual Neurological International Reunion will be held on June 8th and 9th, in the amphitheatre of the Ecole des Infirmières, at the Salpêtrière. The sessions will take place in the mornings from 9 to 12, and in the afternoons from 3 to 6. The main subject discussed will be medullary compression. Those reading papers include Sir James Purves Stewart and Dr. George Riddoch, of London, on the Pathological Anatomy and the Pathogenesis; and Mr. Ch. Foix, of Paris, on the Physiology, Clinical Pathology, and Therapeutics.

Pasteur Centenary.

The programme of the fêtes arranged to celebrate the Pasteur centenary are as follows. Foreign delegates will be received at the Elysée on May 24th. In the morning of May 25th a visit will be paid to the Institut Pasteur and the tomb of Pasteur. In the afternoon a ceremony will be held at the Sorbonne, under the presidency of Mr. Millerand. On May 26th a visit will be paid to the Ecole Normale, and in the afternoon a reception will be held at the Hôtel de Ville. On Sunday, May 27th, various societies will receive the delegates, and in the evening gala nights at the Opéra and the Théâtre Français have been arranged. On May 28th a banquet will be held at Versailles, and on the 29th a garden party will be organised at Chantilly by the Institut de France. On May 30th the delegates will repair to Strassburg. On May 31st the monument to Pasteur will be unveiled, and after a banquet lunch the Pasteur Museum and the hygiene exhibition will be opened. In the evening a reception will be held at the Hôtel de Ville.

The Medical Service of Paris at Night.

Visitors to Paris would do well to acquaint themselves with an organisation for medical emergencies at night provided by the police authorities for strangers, persons without a regular medical attendant, and others. This organisation has existed for some time, and a recent inquiry into its working by *L'Echo de Paris* has proved it to be run in a very satisfactory manner. This is the more creditable as the difficulties in making the machinery work smoothly were at first considerable. "Le Service Médical de Nuit" is available for everyone, and when the family doctor is out of town, or the patient does not wish to disturb him and is anxious to avoid delay, application is made in person or by telephone to the nearest police station. A telephone message is sent from the station to headquarters, where one or more of the staff of 30 doctors are on duty from 10 in the evening till 6 in the morning. The doctor proceeds at once in a motor with emergency appliances to the address given him, and it is seldom that the interval between sending for the doctor and his arrival is more than 20 minutes. If he desires to write a prescription, this is taken to the police station, whence a cyclist takes it to a chemist and brings back whatever has been prescribed to the patient's house. The charge for such a night visit is fixed at Fr.20, but this fee may be reduced if, on inquiry, circumstances warrant such a reduction, and in case of extreme poverty the fee is waived altogether. At first this night service was limited to doctors under the age of 30, but there is now no age limit, and the doctors on the staff take duty in rotation. The average number of calls per night is 30 to 35, and it is evident that this system is a boon not only to patients, but to doctors who, having had a long day's work, have richly deserved an uninterrupted night's rest.

May 17th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Midwives Act.

THE law recently passed concerning the training and practice of midwifery provides that, apart from the medical profession, only trained midwives are entitled to deal with parturition and childbed. Their training will extend over 18 months, and must be practical as well as theoretical; it will be carried out at one of the public midwifery schools which exist in every province. During her training a candidate must attend at least 50 parturitions; admission to a training school is made dependent on a certificate of health and good conduct, and a person applying for admission must be at least 20 and not more than 30 years of age. After practical training a candidate must pass a theoretical examination in the physiology and pathology of pregnancy, parturition, and childbed, and in the care of newborn children. The practical training includes the diagnosis of abnormal cases; if the latter are not available at the time of examination the candidate must prove her knowledge on an anatomical model. A midwife being qualified after examination may not live where she likes, as has hitherto been the case; the law provides for distribution of midwives according to the wants of the population. In places where they refuse to settle the Government may eventually appoint district midwives at a fixed salary. The law provides for a scale of fees graded according to the wealth of the mother, the minimum fee being payable by poor persons and club patients. A minimum income is guaranteed to midwives, and when fees paid by patients do not reach that minimum the balance is to be covered by the Government. The midwife must summon a medical man in every abnormal case, and if the mother and her family refuse she must decline all responsibility, ask for a certificate stating that she wishes a medical man to be summoned, and report the refusal to the district medical officer. Cases of puerperal fever must be notified at once to the district medical officer, and for the duration of that case, and for some time afterwards, the midwife must abstain from work with other mothers under constraint of heavy penalties. Each midwife must keep a register, which will be checked by the district medical officer, who is empowered to examine the midwife's knowledge every second year. The midwife must attend a three weeks' post-graduate course every five years in a provincial training school; if she fails to do so without a reasonable cause her qualification may be withdrawn. The qualification may also be withdrawn for grave misdemeanour and unprofessional conduct. The law provides for the institution of district midwifery boards—to consist of two midwives, two mothers, and female representatives of the sick clubs, under the chairmanship of the district medical officer—and also of provincial midwifery boards. Rather curiously, the law defines the term "mother" as "a woman having borne at least one living child." The most important alterations brought about by the new law are the creation of a definitely professional body of midwives, and the granting of a minimum income.

Proposed Settlement of German Medical Men in Afghanistan.

The Afghan Government has invited German medical men to settle in that country, offering a salary of £15-25 a month, to be reduced to half in cases of illness. The Afghan authorities declared that a medical man only requires £5-6 to keep him, and that he would thus be able to save the rest of his salary. In the *Aerztliche Mitteilungen*, the official organ of the German Medical Union (Leipziger Verband), a correspondent states, however, that the minimum expenses necessary for a professional man in Afghanistan range from £15 to £25 a month, so that a medical man earning the sum offered would be unable to save. The correspondent compares

the salary offered with that granted to officers of our Indian Medical Service.

Cocainism in Germany.

The abuse of cocaine has greatly increased since the war. Formerly it occurred almost exclusively among persons having easy access to the drug, such as druggists, workers in chemical factories, and sometimes medical men. In a recent discussion at the Berlin Medical Society it was stated that the cocaine habit has now invaded nearly every class of the population, and to a greater extent than the morphia habit. Cocaine is snuffed, and is thus easier to take than morphia, which requires injection; it also produces more agreeable sensations. The habit has been further spread by the numerous Russian emigrants now settled in Berlin. Cocaine may not be sold without a written prescription from a medical man or dentist, but it is sold clandestinely, especially by waiters and attendants in certain restaurants patronised by the demi-monde. Great masses of cocaine were stolen after the war, during the revolutionary period, from the Government stock kept for the use of the military hospitals. The production of cocaine is now only allowed in certain factories under Government control (where it is not manufactured from raw cocaine, which may be misused, but extracted by a very complicated chemical process from coca leaves brought from Java), and import of the drug from abroad is strictly licensed. It was argued in the discussion at the Berlin Medical Society that these measures were not sufficient to suppress the evil; that people, especially those living in large towns, wanted stimulants, and that coffee, tea, tobacco, and beer were very expensive compared with cocaine, of which only a small quantity was necessary to produce intoxication. Thus, when the prices of other stimulants were lowered, the abuse of cocaine would be greatly reduced. It was, however, also stated that the majority of persons indulging in cocaine do not do so for reasons of economy, but that they are for the greater part psychopathic subjects unable to face the difficulties of the present hard times without a drug.

Public Health in Prussia.

The Prussian Minister of Health in a recent report to the Prussian Parliament on the state of public health in Prussia stated that diseases of the bronchi and lungs have greatly increased as a result of the scarcity of fuel. Tuberculosis, which showed a constant decrease before the war, has again increased enormously, the number of deaths recorded being 56,000 in 1913, 110,000 in 1918, 78,000 in 1920, and 83,000 in 1921. Since 1918 12 per cent. of hospitals, 15 per cent. of infants' homes, and 15 per cent. of public dispensaries have had to be closed for want of means; the supply of food to hospital and other patients has become inadequate, and other hygienic measures have had to be abandoned. The attention of the Government was especially drawn to the state of health of the children; the general underfeeding of the children which resulted on the blockade can never be made good, and although when the blockade was lifted an improvement occurred, especially with the help of the Quakers, the cost of food is now again productive of distress. In many schools, according to the reports of school medical officers, 50 per cent. of children are underfed, and in some Berlin schools 20 per cent. of the children have had to be temporarily exempted from attendance on account of anæmia and general weakness. Those coming to school have often had no breakfast. The deficiency of linen and soap, and the expense of baths, make proper care of the body very difficult, and diseases of the skin are frequent. Many school-children have no shirts, or are compelled to wear the same shirt for months. Deaths due largely to hunger have been reported in several districts—230 cases in one district alone. Scurvy, before the war almost unknown in this country, occurred in 36 cases, of which 10 were fatal.

May 12th.

CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

It is perhaps a sign of the widening view of what constitutes public health that the President of the Congress, Lord Riddell, at the inaugural meeting in the Grand Hall of the Spa at Scarborough chose for the theme of his address the problem of capital and labour. He gave an impartial survey of the changes during the last 25 years. Labour, which was then concerned with wages, hours, and conditions, now claimed to take a part in the management of industry and the reconstruction of the State. "The group mind," said Lord Riddell, "gives no indication of becoming more altruistic. It behoves every man and woman to take an interest in a question of such vital importance to the future of the country."

The business of the Congress began on May 17th in five sections.

Section of State Medicine.—At the meeting of this section Sir William Middlebrook, M.P., traced the development of municipal work, which, he believed, had not yet reached its full height of activity. Mrs. Edwin Gray (York) spoke of the place of the voluntary worker in public health, and stated that suspicion and jealousy were gradually disappearing with the practice of working in water-tight departments. Dr. J. R. Kaye (M.O.H., West Riding) introduced the housing question. He gave some deplorable examples of overcrowding, and estimated that at least 45,000 houses were needed at once in the West Riding alone.

Women and the Public Health Section.—Lady Dorothy Wood, in her presidential address, stressed the need for creating an enlightened public opinion. Dr. Jane Walker (East Anglian Sanatorium) dealt with the prevention of consumption, and expressed the opinion that although food, milk, and housing were important, tuberculosis was largely an industrial disease. Dr. H. Scurfield, in agreeing, hoped in future more prominence would be given to the sex death-rates in industrial towns, as this would bring out more clearly the effect of occupation in causing consumption. At the afternoon session the milk problem was dealt with by Mr. Wilfred Buckley, Dr. Eric Pritchard, and Dr. Scurfield. The trend of the papers was that the extension of the movement for "tubercle free" milk would only be slow, and that in the meantime pasteurised milk and good brands of dried milk were safe substitutes, little, if any, inferior in food value, which had certainly played a part in the recent remarkable decline in infant mortality.

Industrial Hygiene Section.—Sir Lynden Macassey presided over this section, and welcomed the fact that employers were beginning to coöperate with the Industrial Fatigue Board, and were inviting the active assistance on a business basis of the National Institute of Industrial Psychology. Sir Thomas Oliver gave an address on the Health of the Worker a National Asset, dwelling on the extraordinary variations in the percentage of fitness among the workers of different districts revealed by the recruiting statistics. There was great need for an improvement, not only in housing conditions, but also in the ventilation, &c., of factories. He further advocated a better and more uniform system of recording sickness in our large factories and of standardising the records.

Other Activities.—Lieut.-General Sir Arthur Sloggett presided over the Naval and Military, &c., Section, and Dr. Frederick W. Twort over the Section of Bacteriology and Biochemistry. In a popular lecture Dr. C. W. Saleeby urged the claims of sunlight, and said our industrial cities showed the most appalling contrasts in respect of light-starvation with the cities of Germany, Switzerland, Canada, and the United States. The thing to do in the interests of childhood was to restore the sunlight to our towns, which were the blackest on earth.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal statistics for 1922 of four towns varying considerably in position, population, and types of inhabitants.

Name of district.	Estimated population (mid-year).	Birth-rate.	Death-rates per 1000 of population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Bootle C.B. . .	79,750	25.7	13.7	1.6	0.8	3.6	75	234	3.4
Edmonton U.D. .	68,700	22.1	10.8	1.0	1.2	2.2	67	125	3.3
Stoke Newington M.B. . . .	52,620	17.8	12.9	0.9	1.2	3.5	—	—	5.3
Margate B. . .	27,820	17.0	11.6	0.9	1.6	1.9	59	29	4.2

C.B., County Borough. M.B., Metropolitan Borough. B., Borough. U.D., Urban district. Where a short line is given the figure is not available from the report.

Bootle.

Dr. F. T. H. Wood reports a sharp outbreak of influenza from mid-January to mid-March with a particularly heavy incidence among young children. The elementary schools were closed from Feb. 1st to 10th and steps were taken under the Bootle Corporation Act to close Sunday schools and to exclude children from cinema halls and places of entertainment. A new pavilion of 28 beds for advanced cases of tuberculosis at the Linacre Hospital was opened in May. The Corporation maintain six beds at Leasowe Hospital for children suffering from non-pulmonary tuberculosis, but provision is needed for adult cases, who need surgical treatment. The municipal maternity home was opened in February. Sixty-nine patients were admitted. The regular charge is six guineas for a fortnight. The actual charge averaged £4 2s. per patient. The cost to the rates, after deducting contributions and grant, for the year ending March 31st, 1923, was £571. Public health educational work is being undertaken in earnest and a successful "Health Week" was held in October. The municipal housing scheme has now come to an end with the completion of 302 houses. Originally two sites were purchased and it was intended to erect 314 houses on site 2 and 280 on site 1. Now part of site 1 has been allotted to the educational authority for a school and site 2, under instructions from the Ministry of Health, has been offered for sale. Dr. Wood says there is some diminution of the more serious overcrowding by the completion of 200 houses during the year, but he points out that the excess of births over deaths during this period was 958.

Edmonton.

Dr. H. W. Harding reports that diphtheria continued to be prevalent for the first quarter of the year and that chronic nasal carriers gave trouble. Three of these carriers had their tonsils enucleated and one was benefited by a diphtheria vaccine. The Schick test has not been used, but Dr. Harding is a believer in swabbing, and the routine practice of swabbing diphtheria contacts is adopted. The ante-natal clinic has become very popular. A cleansing station, including bathrooms, a shower spray for dirty heads, and electric fan for driving warm air for drying the hair, a formalin chamber for leather goods, &c., was added to the equipment of the school medical department during the autumn. All cases of tonsils and adenoids are freed from oral sepsis by dental treatment before operation. Operations are performed

at the North Middlesex Hospital. A fee of 10s. is charged and 5s. extra if the case is kept for the night on medical grounds. After operation the cases are conveyed home in the Council's ambulance with a nurse in attendance. The value of the dental scheme has been increased during the year by the appointment of a dental anaesthetist who holds both dental and medical qualifications. Dr. Harding would like to see more differentiation between the backward and the mentally defective children for educational purposes. "It does seem curious," he says, "that a sum of £50 per year can be spent on a mental defective who at the age of 16 is turned adrift to follow his own resources and that no special provision is made for the dull child, who, by his natural intelligence, will probably make good in later life." Dr. Harding reports that the housing problem is still a serious one in Edmonton.

Stoke Newington.

Dr. H. R. Kenwood gives some advice as to cancer, emphasising the need for avoiding sources of prolonged irritation. The "danger signals" of cancer are clearly set forth and the fact that lives could be saved if people would attend to these danger signals and seek early medical advice. At the end of the year Dr. Kenwood investigated the home circumstances of 40 "open" cases of pulmonary tuberculosis. Twelve of them occupied bedrooms shared by from one to three children under 12 years of age. He would like to see provision for the removal either of the cases or of the children, and thinks that resident institutions for such children would be one of the wisest provisions that could be made for checking the onslaughts of this disease. A dental clinic is badly wanted in connexion with maternity and child welfare work. A notable feature of the southern portion of the borough is the "tenementation" within recent years of houses originally built for and occupied by one family. Industrial development of Stoke Newington is unlikely to occur, but there is an urgent need of more dwellings to reduce the excessive occupation of many existing ones.

Margate.

Dr. Rowan McCombe reports that ten cases of enteric fever were notified and that half the patients had eaten freely of cockles. He says that these shell-fish are supposed to be treated by steam for a sufficient time to kill any harmful bacteria before being sold to the public, but since this process tends to destroy the flavour and harden the fish sterilisation is often skimmed or neglected. The meteorological report shows a great contrast to that of last year. The hours of sunshine were 1562, compared with 1800, and the rainfall was 20.5 inches, compared with 9.28 inches.

SCHOOL MEDICAL SERVICE.

Hull.

THE school medical officers in Hull paid 1189 visits to schools and examined 20,513 children, including 5399 special cases. The number requiring treatment or special observation was 5793. The vision and hearing of 5672 children between the ages of 6 and 7 years were estimated by means of test types and the whisper test—the latter a test extremely difficult to carry out in an ordinary school with any degree of accuracy, and the result is not recorded. The vision test of these children discovered 5.6 per cent. with defective vision—that is, with vision of less than 6/12, this figure being the same for boys and girls. Dr. J. W. Fraser states, "the vision of boys improves from code group to code group, the cases of defective vision being only 4.1 per cent. at 8 to 9 years, and 3.8 per cent. at 12 years; among girls there is a slight deterioration, the cases of defective vision being 6.7 per cent. at the 8-9 year period and 6.5 per cent. at 12 years." One cannot question the accuracy of these deductions as the numbers dealt with are not supplied, but it must be remembered that in testing the vision of the younger children with the ordinary Snellens test type there is a considerable mental factor which cannot be ignored.

Unfortunately an outbreak of diphtheria of such severity as to make it necessary to close the school obtained for five weeks. Out of 788 swabs 158 gave positive results and 16 developed clinical diphtheria. An especially interesting feature of this report is the section devoted to special schools. Great care has been taken to find out the after-results of the special care taken of these children. In the last ten years 34 persons (18 male and 16 female) left Osborne-street special school for deaf children. These have been followed up, and the result given (Table I.).

TABLE I.—*Number Employed; Earnings per Week.*

	Boys.				Girls.			
	Un-paid.	Less than 20s.	20s. to 40s.	More than 40s.	Un-paid.	Less than 20s.	20s. to 40s.	More than 40s.
(a)	—	5	5	2	—	—	4	—
(b)	—	—	—	—	—	—	—	—
(c)	1	—	—	—	4	2	—	—
(d)	—	—	1	—	—	—	—	—
(e)	—	1	—	—	—	—	—	—

(a) Industrial or manual occupations. (b) Agricultural and rural occupations. (c) Domestic occupations. (d) Commercial or clerical occupations. (e) Precarious work.

Two—one of each sex—are incapable of employment on account of deafness, 1 girl has died, 1 girl has left the city, 3 girls are now married, 1 boy has been employed and is now out of work, and 1 boy is in another institution.

The after-careers of persons discharged from the special school for mental defectives are naturally different. Of 166 children who have left the Malton-street special school for mentally defective children since 1912, 12 have died, 27 are incapable of employment on account of mental defect, 32 are in residential institutions for mentally defective persons, 10 are in other institutions, and 16 have left the city or cannot be traced. Table II. shows the earning capacity of those employed.

TABLE II.—*Number Employed; Earnings per Week.*

	Boys.				Girls.			
	Un-paid.	Less than 20s.	20s. to 40s.	More than 40s.	Un-paid.	Less than 20s.	20s. to 40s.	More than 40s.
(a)	—	11	7	1	—	2	3	—
(b)	—	2	1	—	—	—	—	—
(c)	3	—	—	—	18	1	—	—
(d)	—	—	—	—	—	—	—	—
(e)	—	19	—	—	—	1	—	—

(a) to (e) as Table I.

Dr. Fraser points out that if a similar number of mentally defective persons all over the county are given residential treatment, the number of institutions required and the expense incurred will be very large; but against this, he says, must be set off that, in a well-managed institution, each inmate does something towards his support and any chance of children being born to inherit the parental defect is prevented.

As Park-avenue special school for crippled children was opened as recently as 1920, it is impossible to get out corresponding returns for the cripples, but substantial progress in school work and medical treatment is reported. The school has 69 children on the roll, 41 of whom are here as a result of infantile paralysis, and there are 12 cases of tuberculous disease. The superintendent spent a month at the Cripples' Hospital at Alton during the year with excellent results, and the children are now making their own splints. Forty cases have massage and 35 electrical treatment daily. The children are happy, and their health throughout the year has been good.

Leeds.

The school medical officer here is assisted by seven full-time doctors, three part-time specialists, and a

whole-time nursing staff of 26 nurses. There are in the city 290 schools and departments, including elementary, secondary, special and trade schools, and 269 of these reported cases of scarlet fever during the year, 2110 cases being notified. Scarlet fever followed on the heels of a widespread epidemic of measles. In one school—Blenheim-street—a case of measles was reported in the infant school on May 1st. The first crop of cases occurred from May 8th until the 15th; the infected class was closed on May 29th, when the epidemic had run its course and the second crop was falling "in the hope that other cases already infected would develop the disease out of school." This hope was promptly realised; the epidemic became thoroughly out of hand and continued throughout the year, 120 schools and departments being closed. Dr. Algernon Weir is inclined to the view that want of sunlight and the low summer temperature were the predisposing causes. At routine inspections 25,673 children were seen. Of these 2884 were found suffering from malnutrition, 10,304 from defective vision, 5706 from nose and throat affections, 308 from defective speech, and 1689 children were under special observation for subnormal nutrition. 5678 children were referred for treatment. A new system has been adopted whereby treatment is paid for by parents according to their means, whereas formerly treatment at clinics was free. During the year 38,154 children received treatment, including 15,073 dental and 14,226 minor ailment cases.

The Services.

ROYAL ARMY MEDICAL CORPS.

Maj. J. E. Powell retires on ret. pay and is granted the rank of Lt.-Col.

MILITIA.

Capt. I. M. Pirrie relinquishes his commn. and retains the rank of Capt.

TERRITORIAL ARMY.

Capt. V. C. de Boinville relinquishes his commn. and retains the rank of Capt.

Capt. J. Eason, having attained the age limit, is retired and is granted the rank of Maj.

Capt. H. Platt relinquishes his commn. and retains the rank of Capt.

DEATHS IN THE SERVICES.

Lt.-Col. James Currie Robertson, I.M.S., C.M.G., C.I.E., C.B.E., who died from heart failure following pneumonia on May 13th, graduated in medicine and surgery at Glasgow University in 1894, and two years later received his first commission in the Indian Medical Service. In 1897 he was placed on plague duty, and in 1901, having already reached the rank of Captain, he was appointed Deputy Sanitary Commissioner to the Government of India. He was later deputed to South Africa for the purpose of organising concentration camps, and became Sanitary Commissioner in India in 1912, five years before reaching the rank of Major. For service in the Soudan he was decorated with medals in 1896, and for service in South Africa the medal with clasp in 1902.

UNIVERSITY OF ABERDEEN: STUDENTS' HOSPITAL GALA WEEK.—As the result of the Gala Week (April 23rd to 28th) held by students, the local hospitals will benefit to the extent of £4753. This was the fourth gala week organised by the students. In 1920 the aggregate sum received without deducting expenses was £1560, in 1921 £2230, in 1922 £4266 and this year £4971. From the official financial statement issued by the Gala Week Committee of the S.R.C. some idea of the various forms of appeal and the success met with may be gathered.

Jazz band performances, £523; collections in outlying districts, £887; sports day, £107; rectorial dance, £201; football match, £245; house to house collection, £501; dramatic performance, £304; beach day, £216; street day, including torchlight, £1453.

The money was allocated as follows: Royal Infirmary, £3000; Sick Children's Hospital, £1000; Maternity Hospital, £500; Morningfield Hospital, £100; Eye Institution, £100; Aberdeen District Nursing Association, £53.

Correspondence.

"Audi alteram partem."

PSYCHO-PATHOLOGY IN THE CURRICULUM.

To the Editor of THE LANCET.

SIR,—I am interested in your excellent leading article in THE LANCET of last week and in the "suggested schedule of training for the general practitioner" proposed by Sir George Newman. This schedule corresponds very closely to the teaching that has actually been provided for the last three years in the Psychiatric Department of Edinburgh University, which is as follows:—

1. There is a course of 20 lectures on "Psychology for Medical Students," given by the distinguished reader in psychology, Dr. James Drever. This course is optional but it is well attended.

2. Eight tutorial lectures are delivered on psycho-pathology, psycho-therapy, psycho-analysis, and mental tests by the two university assistants in psychiatry. Specialists such as Dr. W. H. Bryce, of Kenlaw House, and Dr. Murray Lyon (hypnotism) have also assisted.

3. Twenty systematic lectures and clinics on mental diseases are given by the professor of psychiatry. Dr. Clarkson, of the National Institution for the Training of Imbeciles (which the students visit), lectures on mental defect.

4. The Royal Infirmary, Edinburgh, has wards containing 24 beds for early and mild cases of mental disorder, and Dr. J. D. Comrie, the physician in charge, gives weekly clinics. These are supplementary to the courses I have mentioned.

It will be noticed on comparing this teaching with Sir George Newman's suggested schedule that it exceeds his proposals very considerably, but nevertheless no difficulty is experienced in getting the students to attend as the subjects are very attractive to them after their prolonged studies in things material. In particular the time devoted to "Psychology for Medical Students" is from two to four times longer—20 lectures are given as compared with the 5 to 10 recommended by Sir George Newman. The Medico-Psychological Association (Section of Psychology and Neurology) have both petitioned all the licensing bodies and the General Medical Council to introduce compulsory attendance on psychology into the medical curriculum. I am chairman of a committee of the British Association (Section of Psychology), also appointed to consider this question and to report. In so wide and important a subject I think 20 lectures is a minimum.

I am, Sir, yours faithfully,

GEORGE M. ROBERTSON.

University of Edinburgh, May 21st, 1923.

THE ANATOMY OF THE PITUITARY REGION.

To the Editor of THE LANCET.

SIR,—From your annotation on the Bowman lecture (THE LANCET, May 5th, p. 912) it seems that Dr. George de Schweinitz, after paying a tribute to the memory of Sir William Bowman, detailed the results of his researches in conjunction with Dr. J. Parsons Schaeffer, professor of anatomy in the Jefferson Medical College, Philadelphia, into the anatomy of the pituitary region. "In 125 bodies examined," said Dr. Schweinitz, "it was found that the optic chiasma was in direct relation to the chiasmatic sulcus in only five (or 4 per cent.), although this was the position universally assigned to it in anatomical text-books." So far as I know, it may be true, even at the present day, that all anatomical text-books do make the statement ascribed to them, but I think it right to point out that the idea expressed by the two workers mentioned above is not new.

In the Proceedings of the Anatomical Society for May, 1894, Mr. T. W. P. Lawrence wrote: "In some recently observed specimens the commonly accepted

position of the commissure upon the optic groove was departed from; and although the number of cases examined was too small to justify the statement that the commissure never lies upon the optic groove he believed that such will be found to be the case." I myself had noted but not published the fact so far back as 1891, but in a communication to the *Journal of Anatomy and Physiology*, vol. xxx., entitled "Origin and Intra-cranial Course of the Ophthalmic Artery," I took the opportunity of drawing attention to the point in question and of confirming Mr. Lawrence's published observations. For many years I have abandoned in my lectures the use of the term sulcus chiasmaticus or optic groove and called that groove the olivary groove, which is merely a topographical name, and in the same lectures I have emphasised the fact that the groove is the result of the meeting of the anterior root of each orbito-sphenoid during the growth of the skull. The under free edge of each is sufficiently thick to produce a bar-like structure, the jugum sphenoidale, on the olivary eminence behind which there is a sort of groove which has been assumed to lodge the chiasma.

I am, Sir, yours faithfully,

EDWARD FAWCETT,

Professor of Anatomy, University of Bristol.
May 16th, 1923.

SERUM DOSAGE IN DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—I am extremely sorry if I have in any way misquoted Dr. Frederic Thomson. I understood that his intervention in this discussion was primarily intended to support the dose recommended by the Ministry of Health for doubtful and suspicious cases, a dose which I had ventured to criticise as unnecessarily large for the purpose. I should have doubtless been more accurate had I used the words "as advised by the Ministry" instead of "as advised by Dr. Thomson," but I considered that Dr. Thomson was, so to speak, acting as champion of the Ministry's memorandum. All I meant to imply was that, where particularly severe forms of diphtheria are concerned, the dose "advised by the Ministry" was as little likely to be effective as the dose advised by myself, that both in all probability were directed merely against the average case and not specially virulent types. As regards the question of safety and efficiency I certainly felt that the Ministry's dose would not be harmful to the patient, and it must be remembered that some practitioners still seem to believe there may be risk in giving a large dose, and that it would be effective in securing, what I take it was the Ministry's object, a notable reduction in diphtheria mortality. I never intended to suggest that it would save every case. Dr. B. A. Peters has already assured us, and Dr. Thomson in his last letter agrees, that doses of 10,000 or 15,000 units, even if given on the first day, do not hold up cases of the type now prevalent in Bristol, so it is quite clear that 8000 units would be as useless as 3000 units, if given as a precautionary dose, while waiting for the result of the swab. It seems to me that those who suggest that the medical officer of health should advise practitioners when a severe type is prevalent and recommend a larger dose for the time being are quite right, and that it is not reasonable that the whole country should give unnecessarily large doses because, for instance, a severe type may be prevalent in the East-End of London.

I have not, to the best of my recollection, had a case of this type admitted to hospital on the first day; indeed, from the very nature of it it seems improbable that such an early diagnosis is likely except in a hospital official. I have not, therefore, had the opportunity of trying 60,000 units on the first day. Quite possibly, as it is impossible to compare cases, the types may be different, but in my experience 50,000 or 60,000 units given later seem to have very little effect.—I am, Sir, yours faithfully,

CLAUDE B. KER, M.D.

City Hospital, Edinburgh, May 12th, 1923.

TUBERCULOSIS OF THE SACRO-ILIAC JOINT.

To the Editor of THE LANCET.

SIR,—Through the kindness of a friend of mine I have now received copies of the actual tables in Dr. Rollier's "Heliotherapy," which were quoted by your correspondent Mr. P. B. Roth in his letter of May 5th, under this title, and which, he says, "for the sake of brevity I have combined in one table." If these tables which follow be compared with Mr. Roth's it will be seen that in his desire to be brief he has misquoted the headings and thus vitiated the evidence of the figures.

1903-1913.

Tuberculosis of the pelvic bones (and sacro-iliac disease).	Total	Healed.	Improved.	Stationary.	Died.
Without abscess ..	6	6	—	—	—
With abscess ..	10	10	—	—	—
With sinuses ..	21	9	1	6	5a
Total ..	37	25	1	6	5

a = Arrived with amyloid degeneration.

1913-1921.

Tuberculosis of pelvic bones (sacro-iliac disease).	Total	Healed.	Improved.	Stationary.	Died.
— ..	24	20	3	—	1a
With sinuses ..	22	12	8	2	—
Total ..	46	32	11	2	1

a = Renal tuberculosis.

There is a vast difference between tuberculosis of the pelvic bones as a whole and tuberculosis of the sacro-iliac joint.

I am, Sir, yours faithfully,
H. C. W. NUTTALL.
Liverpool, May 19th, 1923.

THE MANAGEMENT OF PERITONITIS.

To the Editor of THE LANCET.

SIR,—In your leading article in THE LANCET of May 19th, referring to the Hunterian oration by Mr. H. W. Carson, it is stated that "irrigation of the cavity when the inflammatory process is diffuse is given up by nearly all surgeons. It is impossible to remove the infective material by this means; on the contrary, irrigation forces this material into unattacked regions, prolongs the operation, and damages the peritoneal membrane." I agree that irrigation of the abdomen in the presence of diffuse infection is a wrong procedure, and has very properly been given up by nearly every surgeon at the present day. The chances of the patient's recovery in such cases are greatly diminished by free irrigation. The modern procedure which is generally adopted of mopping out quickly the excess of fluid from the pouch of Douglas, introducing a large drainage-tube to the bottom of the pouch, keeping the patient in the Fowler position, supplying fluid either per rectum or, in more desperate cases, subcutaneously, getting the bowels to act by aperients as soon as possible, and washing out the stomach if necessary is attended by most excellent results. When, as was generally done 15 or 20 years ago, the abdomen was freely flushed or irrigated with saline few cases recovered. The reason for this is, I think, quite obvious. It was impossible, as you say in your article, thoroughly to remove all infection, but I do not agree that conveying infection to other parts of the abdomen (when, as is frequently the case, the whole abdominal cavity is infected) can do much harm, especially if the Fowler position is adopted afterwards; neither is it reasonable to suppose that any damage to the peritoneum would result from replacing stinking pus by normal saline. The length of time occupied by the process is a more serious objection. But the real objection is this.

During the development of a spreading general peritonitis, following, for example, the perforation of an appendix or a gastric or duodenal ulcer, there is an acute inflammatory condition of the serous membrane set up by the irritation of the highly toxic material in the abdominal cavity; this is accompanied by a free exudation of serum and migration of leucocytes into the cavity and the development of pus, all the flow is from the vessels into the abdominal cavity, and comparatively little of the toxic material is absorbed into the blood. If this were not so cases of general peritonitis would be far more rapidly fatal. But when the abdomen, containing a considerable quantity of septic pus, is freely irrigated with a fluid such as normal saline, a certain quantity of fluid is always left behind; this fluid, which is highly toxic, is rapidly absorbed into the circulation. It is well known that large quantities of normal saline, when introduced into the abdominal cavity, are very rapidly absorbed; the current is reversed; instead of being from the blood stream into the peritoneal cavity, it is from the cavity into the blood stream, and the patient dies of toxæmia.

This I believe to be the true reason why lavage of the abdomen in cases of general infection is such a useless and dangerous procedure, and why it should be emphatically condemned.

I am, Sir, yours faithfully,

HERBERT H. BROWN, O.B.E., M.D., F.R.C.S.

Ipswich, May 18th, 1923.

PROPHYLACTIC URETHRITIS.

To the Editor of THE LANCET.

SIR,—I was much interested in the annotation on prophylactic urethritis in your issue of Jan. 27th. In 1919 I was running a hospital in Scutari (Shkodra), Northern Albania, and an N.C.O. attended for acute urethritis. Repeated microscopic examinations failed to detect anything but pus cells. Afterwards I found that he had been using the calomel cream thrice daily since his indiscretion ten days before. Perhaps cases described by Drs. Bonnier and Rivoalen were also due to excessive use of the preventive. That the army issue is a preventive, if properly used, I have no doubt. I remember once in Egypt, on the first anniversary of the armistice, when the local disinfectant offices were for some reason closed, I found a very harassed orderly corporal in the hospital tent who said that during the night he had treated 60 men of the battalion. Not one of them developed venereal disease, though all had been exposed to infection. The only failure I had was a man who used the preventive six weeks after the event!

I am, Sir, yours faithfully,

L. FRASER, D.M.O.
(Late Captain, R.A.M.C.)

Famagusta, Cyprus, April 28th, 1923.

THE ORAL ADMINISTRATION OF PANCREATIC EXTRACT.

To the Editor of THE LANCET.

SIR,—A statement authorised by the Medical Research Council that preparations of the pancreas recommended for administration by the mouth have not the action of insulin, is rather hard to accept as final. It is true that there are many extracts of the gland for oral administration on the market which are without value, but have any of these been proved to act upon glucose in vitro? I am, however, glad to be able to report a substantial alteration in the urinary analysis of a patient—a girl of 9 years—who has had diabetes for five years and who has been under modified "Allen" treatment for over three years; this alteration I can only ascribe to the taking of the gland by the mouth. The extract was

supplied to me by Dr. R. L. Mackenzie Wallis, whose article upon its preparation appeared in THE LANCET on April 14th. For two and a half years the reappearance of sugar, from any cause, in the urine of this patient was invariably accompanied by the presence of diacetic acid. As a result of four weeks' treatment with Dr. Wallis's preparation this hitherto constant association has been abolished, and the diacetic acid is to-day only brought back by a considerable addition of fat to the diet. Otherwise, the child may pass sugar in the urine but no diacetic acid.

From a practical point of view this change is of the utmost importance in general practice, for whereas 14 months ago the onset simultaneously of glycosuria and acetonuria was so sudden that a semi-comatose condition was established by a dietetic error within 48 hours of the urine having been sugar-free; to-day the reappearance of the sugar—e.g., from an attempt to raise the carbohydrate of the diet—occurs well before that of the diacetic acid, resulting in a considerable margin of safety at any moment as regards life.

I consider it possible that, were larger quantities of this extract available, the metabolism of the carbohydrates would improve as that of the fats has done.

I am, Sir, yours faithfully,

Broadstairs, May 17th, 1923. MARTIN O. RAVEN.

THE CAUSE OF DEATH IN ANGINA PECTORIS.

To the Editor of THE LANCET.

SIR,—Every word that falls from the lips of Sir Clifford Allbutt—the greatest living authority on angina pectoris—commands my deepest respect. Points in my own experience at variance with his are few. In his lecture on angina pectoris published in THE LANCET of May 5th Sir Clifford Allbutt lays down three postulates, with which, in the main, my experience is in accord. I am unable, however, to accept the inference suggested in the first postulate—namely, that all true cases of angina are determined by organic disease. On the contrary, I think that evidence in abundance can be put forward showing that cases of a true but functional type are very numerous.

Symptoms of functional and organic disease such as those appearing in the angina pectoris are post-reflex phenomena and represent senses and functions disturbed through morbid conditions prevalent at reflex stations. On the other hand, pre-reflex impressions are silent. They present no signs and they pass unnoticed. Hence they have no proper name in the vulgar tongue of this or any other country. It matters little whether persistent pressure on splanchnic nerves be exerted from inside or from outside the aorta, whether it come from an aneurysm or from an œsophagus distended by gas—in both instances alike, through it, the central neurosis is generated and in both events the anginous syndrome appears. When pressure impinges on vagus nerves inhibitory signs follow and sudden death is not an infrequent incident. Whether the cause be functional, as in the case of distended œsophagus, or it be organic as in aneurysm, I think the resulting syndrome merits classification under the name of true angina pectoris, whereas Sir Clifford Allbutt holds the contrary opinion. Moreover, while in agreement with the view that death in anginous disease ordinarily results from vagus inhibition, I do not think that vagus inhibition is due to pain. Never, in my own practice, has death ended a paroxysm of severe pain. In the few fatal cases of anginous disease in which opportunities of obtaining precise information were at my command, death had come during intervals between seizures.

In two cases patients died while sleeping. In neither case had a change in pose immediately preceded death. In neither had the nurse in attendance been warned by cry or groan of the approach of death. In another instance death occurred in an anginous subject who several hours before death had been alarmed by the explosion of a bomb. He

was seated in my hall and my maid informed me that his gait was stumbling when he entered. He neither spoke nor uttered a sound, nor were his features expressive of pain. I raised his hand with the intention of feeling his pulse when suddenly he sank in the chair and died. Before the day of his death I had seen him on several occasions, after seizures, described by him as painful. In a fourth case the patient died after hastening home during a shower of rain. His wife left him seated in a chair before the fire. When she returned to the room a few minutes later, he was still seated and in the same pose as before, but dead. A lady who had suffered from attacks during the last ten years of her life died suddenly during a painless seizure following a meal of indigestible food. A solicitor who previously had suffered from several seizures, hastened his midday meal to attend a meeting, when rising to speak he suddenly fell back into his chair and died. Mr. G. left his house after eating a heavy midday meal. He had suffered from many seizures during the previous year. When distant from his own door about 200 yards he fell down and was picked up dead. No lesion accounting for death was found at the necropsy. All his organs were healthy. The aorta was free from disease.¹ Another patient died while running across a road to escape accident from traffic.

Pain belongs to the category of protective reflex phenomena. Rather than promoting, it opposes inhibitory action. It hardens the pulse and reduces the length of the diastolic period, and through the latter action it increases the beat rate and strengthens the beat. While engaged in taking polygraphic tracings I have had, on several occasions, the opportunity of noticing the mode of initiation of attacks and changes occurring in the curve. On the advent of severe pain, a pulse previously slow quickens its pace, through curtailment of the diastolic period and palpation at the wrist reveals the fact that contemporaneously with a quicker pace the radial artery becomes harder and less compressible. These changes in pulse-frequency and in conditions of the arterial wall indicate reduction of vagus influence and increase of splanchnic. In one case instantly after the onset of pain frequency of the pulse had increased from 46 beats a minute to 138.

Arrhythmia subsides on the advent of pain. In the series of cases already mentioned, one showed extra-systolic deflexion. After commencement of pain the irregularity no longer appeared. Cases obviously spurious are excluded from my category—namely, those of persons who die in great agony from accidental causes, such, for instance, as death from rupture of saccular and dissecting aneurysms or from hæmorrhage into the mediastinum from carcinomatous or from other new growths.

I am, Sir, yours faithfully,

H. WALTER VERDON.

Wimpole-street, W., May 12th, 1923.

THE TREATMENT OF STAMMERING.

To the Editor of THE LANCET.

SIR,—It is gratifying to know that the X ray investigation first carried out by my mother, the late Mrs. Emil Behnke, and by myself, as far back as 20 years ago, is corroborated at St. Thomas's Hospital. This further testimony to the fact, which we have always maintained, that stammering in its *physical* aspect is due to diaphragmatic spasm is welcome, because only through such knowledge, and by the correlating of cause and effect, will satisfactory results of treatment be obtained.

Mrs. M. H. Wigglesworth² says she does not think that the quickest way of giving a stammerer self-expression has yet been discovered, but when it is realised that diaphragmatic spasm—which can be clearly observed by means of the X rays—is usually due to nervous apprehension, and that the stammer has in the majority of cases been caused in the first place by nervous shock of some kind, it will be understood that speedy cure, though occasionally achieved, must not be expected. Long and patient work is usually needed to eradicate the psychic causes; muscle re-education will be necessary if the stammer be of long standing.

¹ THE LANCET, May 12th, p. 978.

² THE LANCET, April 3rd, 1915.

and the difficulties are generally increased by the fact that many stammerers are deficient in tone perception and sense of rhythm. Probably the extremely low rate of 5 per cent. of cure which has been mentioned is accounted for by the difficulty of getting patients to attend the clinic for a sufficient time and to carry out the necessary practice. The higher rate of 50 per cent. of cure obtained in the L.C.C. classes is doubtless due to the greater control obtained over such pupils, and naturally in private practice the results will be better still—my own being about 80 per cent.

I am, Sir, yours faithfully.

KATE EMIL BEHNKE.

39, Earl's Court-square, S.W., May 17th, 1923.

Medical News.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on May 16th, Dr. James Calvert was appointed to represent the University at the Ninth Annual Conference on the Prevention of Tuberculosis to be held at Birmingham on July 12th and 13th next; and Dr. John Fawcett was reappointed to represent the University on the Council of the Lister Institute of Preventive Medicine for the period 1923-33.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates, having passed the requisite examinations, have been admitted Diplomates in Public Health:—

John M. Blair, John A. C. Guy, George L. Johnston, Elizabeth C. Loudon, Peter MacCallum, Patrick J. McDiarmid, Douglas O. Macdonald, Kenneth D. Murchison, George F. B. Page, Andrew G. Petrie, Ruth J. D. Ritchie, Marion Smellie, George D. Steven, Marjorie Thomson, Ruby Thomson, Peter Viera, William H. Wallace, and Enid Anne Williams. The following candidates passed Part I.: Marion B. Armstrong, Catherine McLean Buchanan, Helen Campbell, William Campbell, Alisdair C. Dewar, Katrine Dunn, Margaret A. Galbraith, James S. M. Gray, Katharine J. Guthrie, James L. Halliday, Mary N. Hendry, Catherine Hill, Alexander R. Lester, William McKie, Peggy L. Mitchell, John T. Moffat, George W. Murray, David T. Richardson, Robert G. Shaw, Charles M. Smith, Elizabeth N. Thomson, Sarah B. H. Walker, and Robert H. Williamson.

The following candidates passed Part II.: George Buchanan and Joseph G. Tait.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on May 16th the following candidates, having passed the requisite examinations, were admitted Fellows:—

Balvant Vasdeo Abhyankar, Frederick G. Beatty, Isidore J. Block, Stuart Bolton, Hugh F. Briggs, Charles C. Bryan, Alistair F. Cowan, Upendra Nath Das, Gerald C. Dixon, Norman M. Dott, John Dunlop, Rupert S. A. Graham, James B. Hance, Frank C. Hutchison, James F. Jefferies, Cecil E. McQuade, Arthur G. Ord, Douglas S. Pracy, Alfred H. Proctor, Johannes Z. H. Rousseau, William O. Stevenson, and Andrew Watson.

The Bathgate Memorial Prize, consisting of bronze medal and set of books, was after a competitive examination in materia medica, awarded to Mr. Douglas Bannerman Craig. The Ivison Macadam Memorial Prize in Chemistry, consisting of bronze medal and set of books, was awarded, after competitive examination, to Mr. Henry William Bambridge.

The following candidates having passed the requisite examinations received the Higher Dental Diploma:—Nicholas Johannes Laubscher and Frederick H. Rowat.

INTERNATIONAL CONGRESS OF THALASSO-THERAPY. The International Congress of Thalasso-therapy, which has just been held at Venice, has given rise to important communications. The main question on the agenda was the examination, from every aspect, of the factors determining biological action in diverse maritime resorts. Mr. Bagot (Roscoff) communicated results of the study of the different characteristics of the coastal resorts in modern Brittany, where the temperature is moderate, with no great cold in winter and no great heat in summer. He pointed out that the climate of these resorts is admirably adapted to sufferers from chronic diseases with general debility, while it is contra-indicated for sufferers from erethic and febrile conditions, particularly for patients with pulmonary tuberculosis. Mr. de Francesco reported on the methods followed at the Lido (Italy) in applying helio-therapeutics. Mr. Comisso (Triest) and Mr. Léo (Paris) discussed various methods of thalasso- and helio-therapy. The next Congress will meet in 1925 at Arcachon (France), when the thalasso-therapy of rickets and the analysis of its action will be discussed.

SCHOOL OF HYGIENE.—The Minister of Health, with the concurrence of the trustees of the Rockefeller Foundation, has appointed a transitional executive committee in connexion with the proposed School of Hygiene. The functions of the committee will be to appoint a director, to arrange for amalgamation or coördination between the school and other institutions working in similar or closely related spheres, to prepare plans for the new school, and to begin building, unless in the meantime it has been possible to set up the permanent governing body. The members of the committee are: Mr. Neville Chamberlain (chairman), Lord Burnham, Sir Arthur Clarke, Sir Walter Fletcher, F.R.S., Lieut.-Col. F. E. Fremantle, Sir Harry Goschen, Sir George Newman, Sir Cooper Perry, and Sir Arthur Robinson, with Mr. L. G. Brock, of the Ministry of Health, as secretary.

HARVEIAN SOCIETY OF LONDON.—The annual dinner of this society will be held at the Connaught Rooms, Great Queen-street, W.C. 2, on June 14th, at 7.30 P.M.

ROYAL INSTITUTION OF GREAT BRITAIN.—On May 31st Sir William Bayliss, F.R.S., will deliver his first lecture on the Nature of Enzyme Action. The Friday evening discourse on June 1st will be delivered at 9 P.M. by Prof. H. A. Lorentz, of Haarlem University, on the Radiation of Light.

RONTGEN SOCIETY.—The annual general meeting will be held on June 5th, at 8.15 P.M., in the Institution of Electrical Engineers, Savoy-place, Victoria Embankment, London, W.C. A paper on the Effects of X Rays of Different Wave-Lengths on Animal Tissue will be read by Prof. Sidney Russ, D.Sc., and one on the Establishment of a Definite Relationship between Exposure and Density in an X Ray Plate by Mr. T. Thorne Baker, F.I.C.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The annual dinner will be held at the Café Monico, under the presidency of Dr. A. G. Wells, at 7.45 P.M., on June 19th. Tickets may be obtained from Surg.-Capt. Guy Chambers, 101, Goldhawk-road, London, W. 12. On June 22nd, at 8.15 P.M., at the Kensington Town Hall, the Cavendish Lecture, entitled Speech and Cerebral Localisation, will be delivered by Dr. Henry Head, and will be followed by a conversazione, with a display by all the principal medical supply companies.

SEVENTEENTH FRENCH CONGRESS OF MEDICINE.—This Congress will take place at Bordeaux from Sept. 27th to 29th, under the presidency of Dr. X. Arnoz. The following subjects will be dealt with: (1) Late Results of Paludism (introduced by Prof. Le Dantec and Drs. Hesnard, Marcel Léger, and Broden); (2) Pathological Relationship of the Sympathetic Nervous System and the Endocrine Glands (introduced by Profs. Pachon and Perrin); (3) Treatment of Meningococcal Infections (introduced by Drs. Dopter and Boidin). The secretary to the Congress is Dr. R. Cruchet, 12, Rue Ferrère, Bordeaux.

FELLOWSHIP OF MEDICINE.—The Fellowship of Medicine have been proceeding successfully with the suggested scheme of post-graduate teaching outlined in THE LANCET, and already considerable progress has been made. The general non-undergraduate hospitals have taken up heartily the idea of the suggested grouping system for the holding of short "refresher" courses, and in some cases spontaneous offers have been received from special hospitals wishing to be included in these groups. Dates have been agreed upon for these courses up to a year hence, so that there will be a course lasting for two weeks during each month of the year. The response received from the special hospitals has been so good that it has been no light task to arrange dates so that no two special courses in the same subjects shall take place simultaneously. The complete programme for the year will be published shortly.

The courses arranged for next month include a "refresher" course at the Prince of Wales's General Hospital and affiliated hospitals from June 11th to 23rd, and a course on gastrointestinal diseases of children at the Children's Clinic, Western General Dispensary, from June 11th to July 5th. For those desiring work in the special departments of Ophthalmology, Neurology, and Dermatology, should a sufficient number of entries be received, courses beginning on June 11th and continuing for about four weeks will be given at the Royal London Ophthalmic Hospital, West End Hospital for Nervous Diseases (provisionally), and St. John's Hospital for Diseases of the Skin, respectively. Copies of the syllabus can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W., to whom application for particulars regarding these and future courses should be made.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

WHITSUNTIDE ADJOURNMENT: THE CHANGE IN THE PREMIERSHIP.

PARLIAMENT adjourned for the Whitsuntide recess on Thursday, May 17th. Among the Bills to which the Royal Assent was given by Royal Commission was the Dangerous Drugs and Poisons (Amendment) Bill.

On Sunday, May 20th, Mr. Bonar Law, the Prime Minister, acting on the opinion of his medical advisers, tendered his resignation to the King, and it will be remembered that this possibility was recognised by himself at the time of his acceptance of office. Mr. Bonar Law during his brief tenure of the premiership showed qualities which have recommended him highly to all parties and sections, and his retirement is the subject of wide regret, while its cause has brought no less wide sympathy.

On Tuesday, May 22nd, it was officially announced that Mr. Stanley Baldwin, the Chancellor of the Exchequer, who had been Leader of the House of Commons in Mr. Bonar Law's absence, had been appointed Prime Minister.

HOUSE OF COMMONS.

WEDNESDAY, MAY 16TH.

Medical and Surgical Insurance Benefits.

Mr. RHYS DAVIES asked the Minister of Health what were the respective amounts set aside by Approved Societies under their schemes following the first valuation of Approved Societies for the provision of dental treatment, optical treatment, convalescent home treatment, medical and surgical appliances, and nursing, respectively.—Mr. NEVILLE CHAMBERLAIN replied: Out of the disposable surpluses of Approved Societies in England, following the first valuation, the aggregate amounts set aside for provision of the benefits in question during the five years covered by the schemes are as follows: Dental treatment, £495,000; optical treatment, £106,000; hospitals and convalescent homes, £979,000; medical and surgical appliances, £164,000; and nursing, £107,000. As regards the third item it is not possible to say what portion of the figure of £979,000 was allocated to convalescent home treatment, this benefit being included under the schemes with hospital treatment; but it may be mentioned that in addition the amount of £60,000 was set aside for the leasing and maintenance of convalescent homes of certain societies.

Medical Inspection of Employees.

Mr. GROVES asked the Minister of Labour whether he is aware that in some large firms the medical inspection of prospective employees was of such a character that ex-Service men were penalised; and whether he would make representations to the firms on the King's Roll that whenever an ex-Service disabled man was able efficiently to perform the required work his disability should not be a bar to employment.—Sir MONTAGUE BARLOW replied: If the hon. Member will furnish me with details of any case where difficulty has arisen, I shall be glad to look into the matter and see if any steps can be taken in the direction he has indicated.

Advertisements on Official Medical Forms.

Mr. THOMAS asked the Minister of Health under whose authority National Health Insurance Form Med. 40 B (revised) was being used for advertising Maypole for butter and tea; the amount gained by these advertisements; and the purpose to which the money was applied.—Major BOYDREPPEN replied: In view of the urgent need for exercising every possible economy in public expenditure, the Government has decided that official publications and forms which can be used as a medium for advertisement should be so used. The general arrangements for putting this decision into operation are in the hands of the Controller of His Majesty's Stationery Office, but before any advertisement is inserted on forms issued by or on behalf of any public department the Controller consults that department. The objections to the insertion of an advertisement on Form Med. 40 B were considered, but were not deemed to be so great as to justify a departure from the general rule that available space should now be used for advertisements. The insertion of an advertisement actually operated against the effective use of the form. With regard to the second part of the question the net income derived from advertisement is £135. This revenue is applied as an appropriation in aid of the Stationery Office vote, on which the cost of producing the forms is borne.

Criticisms of the Panel System.

Mr. JARRETT asked the Minister of Health whether his attention had been called to recent criticisms of the panel

system under the National Health Insurance Act; and whether he would institute an inquiry into the working of the Act.—Mr. HURD asked the Minister of Health if he would institute an independent inquiry into the working of the panel system under the National Health Insurance Acts, so as to ascertain how best to remedy the defects revealed in ten years' working of the system.—Mr. NEVILLE CHAMBERLAIN replied: I am aware of recent criticisms of the panel system, which in a service of this magnitude are, I fear, inevitable. The revision of the terms of service of insurance practitioners with a view to securing a more efficient medical service under the Insurance Acts has been fully examined in consultation with the Insurance Consultative Council and the Insurance Acts Committee of the British Medical Association, and I do not consider that any useful purpose would be served by such an inquiry as the hon. Members suggest.

Small-pox and Vaccination.

Mr. BECKER asked the Minister of Health if, seeing that the cases and suspected cases of small-pox notified for 1921 were 336 cases, for 1922 were 979 cases, and for the first three months of 1923 520 cases, he could state the causes of the great increase of small-pox this year; if the disease was on the increase or decrease during April; and had he information indicating that the objection of people to being vaccinated was one cause for the increase.—Mr. NEVILLE CHAMBERLAIN replied: I am advised that the recent increase of small-pox may be attributed to the widespread neglect of vaccination and revaccination, and to the fact that small-pox is a disease of seasonable prevalence, the maximum incidence usually occurring at the end of the first quarter of the year. The number of cases notified in April was 139, as compared with 215 in the previous month.

Opticians as Dentists.

Colonel Sir ARTHUR HOLBROOK asked the Minister of Health whether he would consider an amendment to the Dentists Act which would enable opticians who had hitherto practised also as dentists to be placed on the same footing as dentists with regard to registration.—Mr. NEVILLE CHAMBERLAIN replied: So far as I am aware the particular combination of occupations to which my hon. and gallant friend refers is not sufficiently common to justify amending legislation.

Treatment Allowances to Ex-Service Men.

Mr. SHINWELL asked the Minister of Pensions what allowances were paid to ex-Service men at present in military hospitals on treatment when travelling to and from their homes on leave; whether any reduction on the allowance had been authorised recently; and if the allowance was subject to variation.—Captain CRAIG replied: Men undergoing extended in-patient treatment, who are receiving ordinary treatment allowances, may be granted leave, with free return tickets at six monthly intervals, or with single journey tickets at three monthly intervals. The treatment allowances in issue, in lieu of pension, continue to be paid during authorised leave but no additional subsistence allowance is paid. There has been no recent change in leave arrangements.

Disability Appeals.

Mr. BROTHERTON asked the Minister of Pensions whether an ex-Service man was allowed to appeal either to the entitlement or to the assessment tribunal in a case where the medical officers of the Ministry expressed the opinion that there was no disability; and, if not, would he arrange that a man should have the right of appeal in all cases where his private medical attendant certified that he was suffering from a disability due to war service.—Captain CRAIG replied: My right hon. friend has recently had this class of case, which is of rare occurrence, under his consideration, and although it is open to doubt whether in strictness they come within the terms of Section 8 of the War Pensions (Administrative Provisions) Act, 1919, arrangements will, it is hoped, be made to allow appeals to the Pensions Appeal Tribunal where the Ministry medical boards find no disability.

THURSDAY, MAY 17TH.

Blind and Crippled Children.

Mr. FOOT asked the President of the Board of Education the number of blind and crippled children, respectively, throughout the country for whom no educational provision was being made.—Mr. E. WOOD replied: There are about 500 blind or partially blind children and about 1300 crippled children for whom provision is not made in recognised schools or educational institutions.

Children and Tuberculosis.

Mr. FOOT asked the President of the Board of Education if there were any statistics available showing the number of children throughout the country suffering from tuberculosis for whom no educational provision was being made.—Mr. E. WOOD replied: The relevant statistics of the Board divide children into two categories, those ascertained at

medical inspection to be suffering from pulmonary tuberculosis and those ascertained to be suffering from crippling due to tuberculosis. According to the latest returns furnished by local education authorities, the number of children in the first category is, approximately, 20,000, of whom about 2000 are in special schools, 11,000 are in public elementary schools, and 7000 are attending institutions not certified by the Board or are not at school. In the second category, there are 13,000 children, of whom 1700 are in special schools, 6500 are in public elementary schools, and 4800 are attending institutions not certified by the Board or are not at school. It will be understood that such of these children as are in attendance at public elementary schools are not suffering from tuberculosis in an infectious form. Provision is made in the Code for the exclusion from public elementary schools by the school medical officer of any child whose presence might involve the spread of disease.

Excess of Births Over Deaths.

Captain WEDGWOOD BENN asked the Minister of Health what had been the excess of births over deaths in each year from 1865 to 1921, inclusive; and what was the number of marriages in 1921.—Mr. NEVILLE CHAMBERLAIN replied: In England and Wales the number of marriages in 1921 was 320,852. The excess of births over deaths in the years mentioned in the question is shown in the attached table:—

Year.	Excess.	Year.	Excess.	Year.	Excess.	Year.	Excess.
1865	257,160	1880	353,019	1894	391,462	1908	419,927
1866	253,181	1881	391,707	1895	353,294	1909	396,469
1867	297,276	1882	372,360	1896	388,604	1910	413,715
1868	306,236	1883	367,725	1897	380,196	1911	353,328
1869	278,553	1884	375,922	1898	371,024	1912	385,798
1870	277,458	1885	371,520	1899	346,847	1913	376,915
1871	282,549	1886	366,484	1900	339,232	1914	362,354
1872	333,642	1887	355,573	1901	378,222	1915	252,361
1873	337,258	1888	368,897	1902	404,971	1916	277,303
1874	328,324	1889	367,591	1903	433,643	1917	169,424
1875	304,154	1890	307,689	1904	395,605	1918	50,800
1876	377,653	1891	326,232	1905	409,262	1919	188,235
1877	387,704	1892	338,273	1906	403,800	1920	491,652
1878	352,034	1893	344,614	1907	393,821	1921	390,185
1879	354,134						

Clinics for Physically Defective Children.

Mr. FOOT asked the President of the Board of Education the number of local education authorities who had established clinics for the treatment of physically defective children and the number of authorities who had not yet established such clinics.—Mr. E. WOOD replied: Out of the 318 local education authorities in England and Wales, 297 have established clinics for the medical treatment of school-children found to be suffering from physical defects.

Medical Boards and Final Awards.

Mr. RITSON asked the Minister of Pensions whether the instructions to medical boards held in cases for final awards provided that the doctors should estimate the man's physical condition at the end of two years and assess the degree of disablement on the then probable condition; whether these instructions applied in the cases of men suffering from tuberculosis; and, if so, in view of the nature of that disease, would he issue instructions that final awards should only be given to men suffering from tuberculosis when the degree of disablement was 100 per cent.—Major TRYON replied: There is no such instruction. The regulations require that a man who has been on the pension list four years or more shall be considered for final award; and medical boards are instructed to furnish an assessment for the purpose of such final award unless the man is likely to get materially better or worse within a period not exceeding two years. The Boards are advised that cases of tuberculosis will, generally speaking, be found unsuitable for final award, but that each case should be considered on its merits. As at present advised, I am not prepared to modify the instructions.

Pensioners and Valvular Disease of the Heart.

Mr. ROBERT RICHARDSON asked the Minister of Pensions how many final awards had been made in cases of men suffering from valvular disease of the heart; whether in any case the award was a final weekly allowance; whether he was aware that, in the opinion of cardiac specialists, the majority of cases of valvular disease of the heart were likely to become materially worse and that it was not possible to say what the pensioner's condition would be at the end of two years; and whether he would issue instructions that final awards should not be made in cases diagnosed as valvular disease of the heart unless the degree of disablement was certified to be 100 per cent.—Major TRYON replied: I regret that the form in which the records of my department are kept do not enable me to distinguish readily between valvular disease of the heart and other forms of heart disease. The instructions relating to making of final awards

recognise the probability that cases of valvular disease of the heart will deteriorate. Medical boards are, in fact, advised that cases of this nature will ordinarily be found unsuitable for final awards, but that each case should be considered on its merits.

Assessments by Re-Survey Boards.

Mr. MUIR asked the Minister of Pensions whether, seeing that in certain cases men were not informed of the decision of the medical board when they attended for re-survey, and that this applied particularly to men suffering from a disease aggravated by war service, what was the reason for withholding from these men information as to their degree of assessment.—Major TRYON replied: There is no instruction that men with aggravated disabilities are not to be told their assessments by re-survey boards. Where, however, a board finds it necessary to obtain a specialist's opinion, or where the case is one of difficulty, the position is explained to the man and he is informed later of the result of his examination. I may add that the final decision as to the rate of assessment always rests with a medical board which has examined the man.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.

Monday, May 28th.

ODONTOLOGY: at 8 P.M.
Annual General Meeting:
Election of Officers and Council for 1923-24.
Paper: Dr. Sim Wallace: Observations on the Progress of Preventive Dentistry.

Tuesday, May 29th.

MEDICINE: at 5.30 P.M.
Annual General Meeting:
Election of Officers and Council for 1923-24.

Cases:
Cases will be shown and discussed as follows:—
Dr. Parkes Weber: A case of Jaundice of 15 Years' Duration without Impairment of Health.
Dr. J. A. Ryle: A case of Splenomegalic Polycythæmia with Cerebral Hæmorrhage.

Thursday, May 31st.

UROLOGY: at 8.30 P.M.
Annual General Meeting:
Election of Officers and Council for 1923-24.

Paper:
Mr. Jocelyn Swan: Carcinoma occurring in Clinical Innocent Enlargement of the Prostate.

SOCIETY OF MEDICAL HYDROLOGY.
TUESDAY, May 29th.—(At the University of London, South Kensington.) Lectures and Demonstrations in Medical Hydrology. (To be continued on Wednesday, Thursday, Friday, and Saturday.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.

WEDNESDAY, May 30th.—5.30 P.M., Mr. Ernest Clark: Tips in Ophthalmology for the General Practitioner.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

TUESDAY, May 29th.—5.15 P.M., Dr. Millais Culpin: Treatment in Psycho-neurosis.

WEDNESDAY.—4.15 P.M., Dr. W. M. Feldman: Female Physiology.

FRIDAY, June 1st.—4.15 P.M., Mr. Russell Howard: (Lecture on Surgery) The Testicle. 5.15 P.M., Dr. Mill Culpin: Treatment (2).

WEST LONDON POST-GRADUATE COLLEGE, W.

Monday, May 28th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Bishop Harman: Eye Department. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Mr. Steadman: Dental Dept. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyr Gray: Surgical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Mr. Gibb: Eye Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurology Dept. 2 P.M., Mr. Bishop Harman: Eye Dept. 2.15 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY, June 1st.—10 A.M., Dr. Drummond Robins: Gynaecological Dept. 2 P.M., Mr. Banks-Davies: Diseases of Throat, Nose, and Ear.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapeutics. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davies: Operations, Nose, Throat, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M., patients, Out-patients, Operations, Special Department.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.

THURSDAY, May 31st.—4.30 P.M., Dr. H. Crichton Miller: Toxins, Endocrines, and Emotions.

NORTH-EAST LONDON POST-GRADUATE COLLEGE,
 Prince of Wales's General Hospital, Tottenham, N.
 Demonstration of Clinical Cases at 3.30 P.M.
MONDAY, May 28th.—Dr. J. Browning Alexander: Medical.
TUESDAY.—Mr. J. Howell Evans: Surgical (3 P.M.).
WEDNESDAY.—Mr. Norman B. Fleming: Eye Cases.
THURSDAY.—Mr. H. W. Carson: Surgical.
FRIDAY, June 1st.—Dr. C. E. Sundell: Diseases of Children.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, May 28th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Ophthalmic Herpes: Mr. Paton.
TUESDAY, May 29th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Syphilitic Disease of Nervous System: Dr. Adie.
THURSDAY, May 31st.—2 P.M., Out-patient Clinic: Dr. Kinier Wilson. 3.30 P.M., Pituitary Disease: Dr. Gordon Holmes.
FRIDAY, June 1st.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Trauma in Relation to Nervous Disease: Dr. Collier.

COURSE OF LECTURES ON NEURO-PATHOLOGY.

MONDAY, May 28th.—12 noon, Paths of Infection on Central Nervous System: Dr. J. Godwin Greenfield.

A COURSE OF 12 LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on **TUESDAYS** and **FRIDAYS** if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the whole Course is £12 12s., including Anatomy and Physiology, but these Lectures may be taken separately for a fee of £4 4s. The fee for the Course without Anatomy and Physiology Lectures is £10 10s. Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION, 11, Chandos-street, Cavendish-square, W.

TUESDAY, May 29th.—5 P.M., Dr. Alice E. Sanderson Clow: The Effects of Physical Exercise on Menstruation.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.

THURSDAY, May 31st.—4.30 P.M., Dr. Leonard Hill: New Ideas concerning the Biological Action of Light.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.C.

TUESDAY, May 29th.—5 P.M., Prof. A. L. McIlroy: Haemorrhage in Pregnancy.

ONDON LOCK HOSPITAL, 91, Dean-street, W. 1.

MONDAY, May 28th.—5 P.M., Mr. Charles Gibbs: Antenatal and Post-natal Treatment of Syphilis.

TUESDAY.—2.30 P.M., Mr. J. E. R. McDonagh: Microscopic Demonstration of Leucocytozoön Syphilis.

At 283, Harrow-road, W. 9.
WEDNESDAY.—3 P.M., Mr. Ernest Lane: Treatment of Gonorrhoea in Women.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, May 31st.—4 P.M., Mr. Higgins: The Acute Abdomen.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

MONDAY, May 28th.—6 P.M., Dr. Eric Pritchard: Rickets.

TUESDAY.—8.45 P.M., Mr. M. S. Mayou: Prophylaxis and Treatment of Common Diseases of the Eye in Children.

THURSDAY.—6 P.M., Dr. Eric Pritchard: Weaning and Feeding up to 5 Years.

FRIDAY, June 1st.—8.45 P.M., Dr. H. MacCormac: Treatment of Eczema in Infants.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, May 31st.—5 P.M., Mr. Aleck W. Bourne: Puerperal Sepsis.

ANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, May 29th.—4.15 P.M., Mr. W. R. Douglas: Chronic Appendicitis.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

MONDAY, May 28th.—At Hereford, Dr. C. E. K. Herapath: Tachycardia.

THURSDAY.—At Bristol, Prof. Walker Hall: Normal and Acquired Resistance to Disease.

MACLEAN, N. A., M.B., Ch.B. Glasg., House Surgeon, Adden-brooke's Hospital, Cambridge.
 RADLEY, S. B., M.B. Lond., F.R.C.S. Eng., Honorary Surgeon to the Newark and District Hospital.
 Certifying Surgeons under the Factory and Workshop Acts:
 MORRIS, S. G., M.D., C.M. Edin. (Rhondda, Porth); COHEN, S. M., M.D., B.S. Lond. (Rhondda, Treorchy).

Vacancies.

For further information refer to the advertisement columns.

Birkenhead Borough Hospital.—Hon. Radiologist.
 Blackburn County Borough.—Asst. M.O.H., &c. £600.
 Bradford Royal Eye and Ear Hospital.—Hon. Ophth. S.
 Calcutta.—Port Health Officer. Rs.1200 per mensem.
 Carmarthenshire Education Committee.—Chief Sch. M.O. £700.
 Chelsea Hospital for Women, Arthur-street, S.W.—Registrar. £50. Also H.S. £120.
 Colindale Hospital, Hendon, N.W.—Jun. Asst. M.O. £515 6s.
 Dreadnought Hospital, Greenwich, S.E.—H.S. £150.
 Dundee Royal Infirmary.—Asst. Radiologist.
 Elizabeth Garrett Anderson Hospital, Euston-road.—Asst. S.
 Essex County, Halstead and Belchamp United Sanitary Districts.—M.O.H. and Asst. County M.O. £750.
 Glasgow, Gartloch Mental Hospital.—Locum Tenens. £350.
 Gloucestershire Royal Infirmary.—Asst. S.
 Hertford County Sanatorium, Ware Park, near Ware.—Asst. M.O. £300.
 Hospital for Sick Children, Great Ormond-street, W.C.—H.S. £50.
 Hull Royal Infirmary.—Hon. Asst. S.
 Jamaica, Parochial Board of Clarendon.—M.O.H. £600.
 Kingston Union Hospital.—Asst. Res. M.O. £400.
 Lancaster County Mental Hospital.—Asst. M.O. £590.
 Leeds University.—Lecturer in Bacteriology. £500.
 Liverpool Hospital for Cancer and Skin Diseases.—Hon. Asst. S.
 Maidstone, Kent County Ophthalmic Hospital.—H.S. £300.
 Mount Vernon Hospital for Tuberculosis, Northwood, Middlesex.—Asst. Res. M.O. £200.
 Northamptonshire County Council Education Committee.—Asst. School M.O. £500.
 Oxford, Radcliffe Infirmary and County Hospital.—H.P. £200.
 Preston, Lancs, Whittingham County Mental Hospital.—Pathologist Asst. M.O. £590 17s.
 Queen Mary's Hospital for the East End, E.—Cas. O. £150.
 Royal Free Hospital, Gray's Inn-road, W.C.—H.P., H.S., Asst. Cas. O., Obstet. H.S. Also H.S. and Obstet. Asst. £50.
 Royal Northern Hospital, Holloway, N.—Ophth. S.
 St. Lucia, Victoria Hospital.—Res. S. £500.
 St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. P. and Hon. Asst. P.
 Salford Union Infirmary, Hope, Pendleton, near Manchester.—Second Asst. Res. M.O. £250.
 Salop County Council.—Asst. M.O. £550.
 Sheffield, Jessop Hospital for Women.—Asst. H.S. £100.
 Staffordshire County Mental Hospital, Cheddleton, near Leek.—Locum Tenens Asst. M.O. 7 guineas weekly.
 Ventnor, Isle of Wight, Royal National Hospital for Consumption.—Asst. Res. M.O. £300.
 Welsh Board of Health.—Female M.O. £600.
 Western Australia Lunacy Department.—Sen. Asst. M.O. £552.
 West London Hospital, Hammersmith-road, W.—H.P. and H.S. Each £100. Also Asst. Anæsth. and Hon. Med. Radiologist.
 Windsor, King Edward VII. Hospital.—Sen. H.S. £200. Also Jun. H.S. £150.

Births, Marriages, and Deaths.

BIRTHS.

DAWSON.—On May 13th, at "Brooke," Torquay, the wife of Captain F. G. L. Dawson, R.A.M.C., of a daughter.
 GREENWAY.—On May 9th, at Plumstead High-street, the wife of Dr. Chas. M. Greenway, of a daughter.
 PATTERSON.—On May 14th, at Pirbright, Surrey, the wife of Captain A. F. L. Patterson, D.S.O., R.A.M.C., of a daughter.
 ROBERTS.—On May 16th, at the Parsonage, Kuala Lumpur, F.M.S., to Dorothy M. Roberts, M.B., Ch.B. (née Somerville), the wife of Rev. B. C. Roberts—a son.

MARRIAGES.

KEANE—CHAPMAN.—On May 16th, at Westminster Cathedral, by Rev. Father Keane, Rector of Campion House, Oxford, Major Gerald J. Keane, D.S.O., to Auriol Frances Kyrle Chapman.

DEATHS.

GARMAN.—On May 14th, at Oakeswell Hall, Wednesbury, Walter Chancellor Garman, M.D. Edin., J.P.
 ROBERTSON.—On May 15th, at Simla, India, of heart failure following pneumonia, Colonel James Currie Robertson, C.M.G., C.I.E., C.B.E., I.M.S.
 SWAINSON.—On May 16th, suddenly, James Middleton Graham Swainson, F.R.C.S., Elms-road, Clapham, and Welbeck-street, in his 51st year.
 WILLEY.—On May 16th, at Somersfield, Reigate, Surrey, Henry Willey, M.D., F.R.C.S., aged 84 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Appointments.

ERTIS, H., F.R.C.S. Eng., has been appointed Consulting Surgeon, Metropolitan Hospital, London.
 UNSCOMBE, C., B.Ch. Camb., M.R.C.S., L.R.C.P. Lond., D.P.H. Oxf., Resident Medical Officer to the Brighton Isolation Hospital and Sanatorium.
 BSON, J. M., M.D., D.P.H. Belfast, Medical Officer of Health and School Medical Officer for the Medical District of Radcliffe, Lancashire.

Notes, Comments, and Abstracts.

THE PATHOLOGICAL GALL-BLADDER.*

BY ARIAL W. GEORGE, M.D.,

ASSISTANT PROFESSOR OF ROENTGENOLOGY, TUFTS COLLEGE
MEDICAL SCHOOL, BOSTON.

AFTER referring to the pleasure with which he had accepted the invitation to come to England and discuss the subject of the pathological gall-bladder, and expressing the belief that the English-speaking peoples lead, and should continue to lead, in this specialty, Dr. George continued as follows:—

No one can approach the gall-bladder problem without being familiar with the work of Robert Knox. To my colleague Dr. Leonard and myself, this work of Knox was probably our greatest stimulus in our early work upon gall-bladder disease and gall-stones. Yet possibly we were a little discouraged in a careful analysis of his work, because of the fact that there was a large group of gall-stones not visible to the X ray, owing to their physical qualities. In the early days, when we attempted to carry out the study of the duodenum by the plate method introduced by Cole, of New York, we occasionally found shadows either distinctly due to gall-stones or very suggestive of gall-stones. We spent a great deal of effort, time, and study to determine in each and every case that came through our clinic whether stones existed or not. After having had considerably more success than we at first hoped for, we realised that many cases showed indefinite shadows only suggestive of gall-stones in shape, size, position, and a certain amount of increased density; the question therefore arose whether these shadows might be due to a collection of stones in the gall-bladder. Through a period of time when we met with discouragement from every angle, especially from our colleagues in the demonstration of these cases, in a good many cases, where we thought by the density of the shadow and by the shape that we were possibly dealing with gall-stones, we found at operation that the gall-bladder did not contain stones, the shadows being due either to thickening of the gall-bladder wall, inspissated bile, or very thick and dark bile. We became convinced after a series of these cases that we were actually making visible the gall-bladder itself. Thus we changed our opinion, or our method of reporting, and considered it as "the pathological gall-bladder."

Invisibility of Normal Gall-Bladder.

It then became perfectly obvious from previous experience in gastro-intestinal work, especially the study of the upper right quadrant, that we were not yet able to make visible the normal and healthy gall-bladder, and I believe that this statement holds to-day, although there may be an occasional exception to this rule—that is, there may be times when we do show the normal gall-bladder. Thus, when we made visible a shadow in the upper right quadrant consistent in size, shape, and position with what we understand to be the gall-bladder, we considered this to be a pathological gall-bladder with or without gall-stones. The effort of our colleagues and of most of the roentgenologists seemed to be aimed at proving that they could demonstrate the normal gall-bladder rather than trying to demonstrate the pathological gall-bladder. For a time we, in our clinic, stood alone in the study of the pathological gall-bladder; only within recent months has there been a general change of opinion, brought about largely by Kirkland, of Muncie, Indiana, who was associated with me on war service. On his return to civil practice Kirkland, being in a part of the country where gall-bladder disease and gall-stones are apparently common, made in a year or two a collection almost equalling ours in numbers, carrying out his work along the same lines. He was invited to the Mayo Clinic for two months to X ray the gall-bladder cases which were to be operated on, having been diagnosed as gall-bladder disease or stones from the clinical history. Though I have not his exact figures, it is reported that he made 92 per cent. correct diagnoses in a series of cases operated upon, well over 100 in number. This seems a startling but very satisfactory demonstration of individual ability to make this study exact and worth while.

Later, as we perfected the technique of the examination of the upper right quadrant, there came a time when we needed, in a large number of cases, other evidence to help substantiate the visible gall-bladder, so we began to enumerate and classify observations which we called "indirect evidence" or "secondary evidence." We prefer the latter term.

Pressure Deformity.

We found that the normal healthy gall-bladder did not

cause pressure so that it would outline itself upon the barium mass. We also found, however, that when we obtained this pressure deformity of a certain character it was almost conclusively due to the gall-bladder, and in almost every instance to disease of the gall-bladder—in other words, we were dealing with a pathological gall-bladder.

We classify this filling defect, or pressure deformity, in various ways. The effect of the gall-bladder is upon the first portion of the duodenum, in both the antero-posterior and lateral diameters. We may find in the gastro-intestinal examinations deformity of the first portion of the duodenum due to various causes, such as poor filling of the cap at the moment of exposure, malposition of the stomach for various reasons, either normal or abnormal, spasm at the pylorus, adhesions, and ulcer. I believe that most of us can recognise the characteristic changes of ulcer as easily as cancer of the stomach. There may be unusual deformities, sometimes hard to differentiate from ulcer, but we have our method of determining this with more or less certainty.

In deformity due to a gall-bladder we have a definite and tangible shadow, which we have termed a "half-shadow," due to the concave or rounded surface of the gall-bladder pressing against the similar surface of the duodenum. If the edge of the liver, which is a flat surface, presses against the duodenum, we lack this "half-shadow" as we have no concavity to produce this half-shadow. My own colleagues in America have not seemed to grasp the fundamentals of pressure deformity due to the gall-bladder; the interpretation or differentiation of pressure deformity due to a gall-bladder in contradistinction to that of a liver edge must be understood and recognised to make what I am going to say clear and easy to interpret.

Causation of Pressure.

Why should the gall-bladder cause this pressure? In the first place, we have pathological gall-bladders with no adhesions, and a great many with adhesions between the gall-bladder and the duodenum. The chances are that at some period of the examination or examinations there will be tension within a pathological gall-bladder greater than the tension within the duodenum when filled with barium. We conclude that when the stomach is in either the prone or lateral position it cannot, in view of the power exerted by gravity, peristalsis, and the weight of the barium mass, push to one side a gall-bladder in close approximation to the duodenum; we then have the feeling that tension is greater in the gall-bladder than in the duodenum. We admit that occasionally one finds a perfectly healthy gall-bladder which for a short period of time is under tension, but which empties itself sooner or later. On the other hand, a gall-bladder under tension with power to impose itself upon the first portion of the duodenum is potentially pathological in some degree.

Unfortunately, we must admit that under ordinary circumstances fluoroscopy does not help to determine these facts; the latter can only be obtained with the most careful plate or film method. Many cases show deformity not in the prone position, but only in the lateral position, so that all views must be taken. Many cases show pressure deformity of the gall-bladder upon the first portion of the duodenum in the lateral position, but they more frequently show the picking up of the second portion of the duodenum and its extension back toward the spine in the horizontal position. With gall-stones of the type invisible to X rays we occasionally see a serrated edge to the shadow produced by the gall-bladder against the duodenum.

I have no statistics as to the relative frequency of pressure deformity and pathological gall-bladder, but Dr. Leonard and I feel more convinced to-day than ever that this deformity is one of our strongest links in the chain of evidence toward the diagnosis of a pathological gall-bladder.

Involvement of Second Portion of the Duodenum.

The second important structure involved—although perhaps not so frequently as the first portion of the duodenum—is the second portion. Those who have carried out one method of procedure covering a large series of cases over a long period realise the position of the average normal stomach. In the prone position we find that the second portion of the duodenum extends downward parallel to the vertebrae, until it reaches its third portion, where it passes upwards and behind the stomach; the position of the second portion has a great significance in the diagnosis not only of gall-bladder disease but of other conditions.

Except in very stout or very poorly-nourished patients or in those with scoliosis or some skeletal defect which gives rise to change in the organs generally, the position of the second portion of the duodenum is constant as above outlined; a very common change due to gall-bladder disease is the picking up of the second portion of the duodenum outward toward the liver, and in quite a number of cases the size of the gall-bladder can be outlined by the position of the second portion of the duodenum. In the study of the pancreas, changes in the second portion form our most important diagnostic sign. In the lateral position instead of

* An abstract of the Mackenzie-Davidson Memorial Lecture, read at the First Annual Joint Meeting of the Roentgen Society and the Electro-Therapeutics Section of the Royal Society of Medicine on May 17th, 1923.

the second portion of the duodenum passing downward and parallel to the vertebræ, it often takes a backward curve, depending upon the size of the head of the pancreas. With a nodular pancreas this pressure deformity of the nodules will be seen on the barium-filled second portion of the duodenum so clearly that there is no great difficulty in the interpretation. Again, in the lateral position, a duodenum that passes backward toward the vertebræ and then forms an angle passing downward again to its normal position is most significant of gall-bladder disease. Burnham, of San Francisco, at a meeting of the American Roentgen Ray Society in September, 1922, definitely brought out this observation in a large series of cases.

In dealing with retroperitoneal tumours—for example, sarcoma—the duodenum will be found to be pushed in the opposite direction, and the tumour mass will be outlined upon the posterior portion of the duodenum; it can be detected by the new position which the second portion of the duodenum takes as compared with the normal.

It is, of course, unnecessary to say that the best results will be obtained by the plate or film method; with sufficient experience this observation can be detected fluoroscopically. In exception to general rules is the post-operative case; all the above observations may be valueless because of fixation, mental and otherwise. All cases that have had previous abdominal operation, especially of the upper right quadrant, are difficult to interpret, as normal relations are so definitely disturbed in some instances. We cannot urge too strongly a careful consideration of all these facts relative to gall-bladder disease. The second portion of the duodenum plays its most important part in the diagnosis of the gall-bladder region.

When the duodenum passes outward toward the liver and then proceeds downward to its normal position we must consider that this position of the duodenum is due definitely to fixation, and in only rare exceptions will this be found to be due to other than gall-bladder adhesions.

Pressure upon the Antrum.

Pressure of the gall-bladder upon the antrum of the stomach will occur as frequently as pressure deformity on the first portion of the duodenum; in a large number of cases it will be found on the first portion of the duodenum, extending to the antrum. In this observation we must look for the half-shadow effect. Another observation of value is the transposition of the jejunum from its normal position from the left to the upper right quadrant. This has frequently been of assistance to us in the determination of gall-bladder disease; but we appreciate from experience that tuberculous or other peritonitis earlier in life may be the cause. It is remarkable how easily the gall-bladder throws out adhesions and picks up adjacent structures.

Filling of the Ampulla of Vater.

A fourth observation of relatively common occurrence, but possibly not of quite such definite value, is the filling of the ampulla of Vater. We have found, in every instance in which we have had the cases operated upon, that if we could show the ampulla full of barium throughout a series of gastro-intestinal plates or films, this was significant of one of two conditions—gall-bladder disease or disease of the pancreas. We know, of course, that changes frequently occur in the pancreas secondary to chronic gall-bladder disease. At one time we kept a record of a series of these visible ampulla cases operated upon for gall-bladder disease and other conditions—the number of 27; in every instance they displayed disease either of the gall-bladder or of the pancreas, or both. All the other indications outlined are absent or cannot be demonstrated, and if we find only the filling of the ampulla of Vater, we feel that we have neglected for one reason or another to obtain the most satisfactory results from this method throughout the examination.

Change in Position of Proximal Portion of Transverse Colon.

Another observation that can be mentioned and which is of considerable importance is the change in position of the proximal portion of the transverse colon. In a way it forms a secondary hepatic flexure, or, as we have sometimes called it, a "pseudo-hepatic flexure." Very often in the absence of other signs this change of the transverse colon will be present and will constitute the only diagnostic sign pointing to the gall-bladder.

One other diagnostic factor brought forward by Carman, Burnham, and others, which we have felt was not entirely reliable, is so-called spasm which occurs in the antrum of the stomach. Possibly this should be observed with the fluoroscope rather than with plates or films; we do not attach any considerable significance to it, unless it appears in conjunction with other signs which make the diagnosis positive.

It can be readily seen that if the observations which I have enumerated are reliable we have considerable evidence to help towards the diagnosis of a pathological gall-bladder, aside from the visible gall-bladder. To me this makes the work still more satisfactory, because we are

not depending upon one diagnostic observation but upon numerous ones, any one of which may be of the utmost importance in a given case.

Negative Value of X Rays.

Many have asked the question, "What is the negative value of X rays?" We feel, perhaps more strongly than ever, that if we have evidence which makes for a positive diagnosis, then the absence of all of this evidence has some value towards the negative aspect of the study. We are sure that with a proper examination, in a given case of actual pathological processes of the gall-bladder can be in almost every instance recognised by changes manifested in the plate or film of the X ray examination. There are unquestionably degrees of pathological processes, such as mild cholecystitis, which do not change the quality of the bile to any extent or give rise to thickening of the bladder wall. I believe that even in these cases we can, with carefully taken films, bring out secondary evidence of diagnostic importance. Even with cholesterol stones, which are usually in numbers, if we have a large number we have mass, and if we have mass we have increased density. It may not always be possible to recognise individual stones, but with increased density, and taking into account the shape of the gall-bladder, we can be pretty sure that we are dealing with a chronic gall-bladder or with stones or both.

The question is then asked: "Why, when we have simply microscopical changes in the gall-bladder wall, can we detect these changes with X rays?" So far as our experience is concerned, and so far as we can find from the literature, the moment infection takes place in the gall-bladder there is change in the tissue of the gall-bladder, and immediately, or very soon, the bile becomes turbid, cloudy, considerably darker, and more tar-like. We found in a series of laboratory tests that this bile, as it darkens in colour from the normal, becomes denser in quality, with increase of opacity. We have had gall-bladders removed and with an immediate specific gravity test of the bile found it was double the normal. It is perfectly obvious that with this increase in density, or specific gravity, this condition is more easily recognisable with X rays.

Perseverance Necessary.

We have been asked many times by our colleagues, especially of the younger group, why we can show things so constantly when they are unable to do so with the same apparatus and with the same type of patient. Perhaps that question can be answered by stating that one big factor in gall-bladder work, aside from the necessary apparatus and facilities, is perseverance. The investigator should continue his work in an individual case until he has obtained, through a series of films, a most satisfactory film from every angle. This means that the patient must be absolutely at rest without breathing. The technique, the quality, and the exposure value must be exact for the individual case; for this there is no standard. The second big factor in this study seems to me to be a willingness to look for changes and to admit that the latter exist and can be found.

I think that, in view of our experience covering a number of years and a large series of cases, we have in the use of X rays a definite method of examination of the upper right quadrant. If we do not reach 100 per cent. of correct diagnoses, this does not relegate the method to a second place, for our percentages are as high as can be expected in any branch of medical science. Up to the present time no one method touches perfection, but our endeavour should be to make our practice in this specialty as near 100 per cent. as it is humanly possible.

SANITARY ADMINISTRATION IN THE PUNJAB.*

THE population of the Punjab, for which statistics are given in this report (that is, the civil population, less that of cantonments, of the Punjab States, and of the Biluch Trans-Frontier Tract) was, according to the census taken in March, 1921, 20,517,606; this total is less by 255,583 than the estimate obtained by the "natural increment" method—that is, the progressive total obtained by adding yearly the excess of births over deaths to the last census population. This deficit is to be attributed mainly to emigration. As compared with the 1911 census (19,337,146), there has been an increase of 6.10 per cent.; males number 11,204,834 and females 9,312,772, these figures showing increases of 5.63 and 6.69 per cent. respectively. Lieut.-Colonel W. H. C. Forster, I.M.S., director of public health for the province, who forwards this report for 1921 considers that the broad result is satisfactory; "owing to devastating epidemics population does not increase rapidly in the Punjab, the total increase in British territory since 1881 being only 3,746,114." An

* Lahore, 1922. Supt., Govt. Printing.

actual decrease has occurred in six districts, amounting in Gurgaon, Dera Ghazi Khan, and Jhelum to 6.47, 6.16, and 5.68 per cent. respectively. For the province as a whole there has been an increase of 5.92 per cent. among Mohammedans, who form more than half of the population; of 4.66 among Hindus, and of 90.82 among Indian Christians. The general birth-rate, 41.5 per 1000, was 1.4 less than that of the previous year, but 1.2 higher than the mean of the previous five years; the highest ratios were registered in Lyallpur (48.7), Gurdaspur (47.5), and Amritsar (47.3) districts; in the exceptional district of Simla, with the small population of 40,937, the ratio was only 20.0 per 1000; the next lowest ratio was that of 30.2 in Dera Ghazi Khan. The provincial rate was higher than that of any other, Central Provinces coming next with 37.90, and Madras showing the lowest ratio of 27.05 per 1000. For males the ratio (21.9) was 2.3 in excess of that for females, the same as in 1920.

The general death-rate of 30.1 per 1000 was 1.5 higher than that of 1920 (due to cholera and malaria), but 8.8 less than the five-year average; for males it was 29.7, and for females 30.6. In the neighbouring United Provinces the rate was 39.57, while in Burma it was only 21.45, and in Madras 20.18. In the districts of Kangra and Rawal Pindi the ratios were 56.5 and 47.7, due chiefly to cholera, plague, and fevers; in Montgomery and Sheikhupura only 16.5 and 18.5 respectively. The infantile mortality, 195.78 per 1000 births, exceeded that of 1920 (182.85), but was appreciably less than that of the previous quinquennium (215.55). Amongst Hindus the ratios were 209.39 and 195.38, amongst Mohammedans 206.08 and 177.63 for males and females respectively; while for Indian Christians they were 148.0 and 142.4, this comparatively low mortality being probably due to the attention devoted to them by the missions concerned. For the province generally the urban death-rate of 33.46 per 1000 exceeded that of the rural districts (29.76) under all the heads of mortality except "fevers," in which group, however, plague deaths may have been included in the country districts. Among these latter the total mortality varied from 16.57 in Montgomery (with a fever ratio of 13.61), and 18.92 in Sheikhupura (Lahore), also with a fever ratio of 13.61; to 46.36 (fevers 32.49) in Rawal Pindi, and 56.55 (fevers 33.03) in Kangra. In the towns the total mortality varied from 2.18 per 1000 in Mian Channu (Multan district), and 2.53 in Okara (Montgomery), to 76.65 in Kangra and 84.08 in Dasuyah (Hoshiarpur), cholera and fever being the chief fatal diseases, with the addition of dysentery (16.20) in the case of Kangra. It is impossible to attribute such excessive variations to climatic causes; there must be local conditions (presumably capable of improvement) that need attention. Relapsing fever prevailed in some districts, and is said to be of special interest in the province, although there is no heading in the tables showing its local incidence. In Palampur *tahsil* of Kangra district 34 villages were infected, the disease having been introduced from the contiguous Native State of Mandi, where it is said to be prevalent; in Simla town there were 41 cases, with 7 deaths. The disease is frequently overlooked, and Lieut.-Colonel C. A. Gill, chief malaria medical officer, considers that the total mortality from this cause was not less than 26,000. Enteric fever is not separately recorded for the province generally, but in Simla town there were 12 cases, four of which, however, were imported. Dysentery and diarrhoea accounted for 11,826 deaths (0.58 per 1000), as compared with 0.47 in 1920 and 0.58 in the quinquennium; at Rawal Pindi the mortality was 4.73, at Sheikhupura and Montgomery only 0.01.

The mortality from cholera was the highest on record since 1900: the deaths numbered 19,215, compared with 138 in the previous year, and the mortality ratio was 0.94 per 1000, against 0.01 in 1920 and 0.12 for the previous quinquennium. Every district throughout the province was affected, that of Kangra, in Jullundur division, having a death-rate of 7.5 per 1000, and in the town itself, 15.92 per 1000; in the small town of Dasuyah, in Hoshiarpur district, the mortality was 34.2 per 1000. The province was entirely free during the first three months of the year; the epidemic commenced in April, reached its climax in September (when there were 7279 deaths), and practically came to an end in October. The disease was introduced in April by a man coming from an infected house in Delhi to the Gurgaon district, but did not spread owing to prompt action by the district M.O.H. Later in the month infection was again introduced by pilgrims returning from Hardwar to Kangra. "The epidemic emphasises the necessity for a district preventive staff. Given prompt information of an outbreak, and the staff necessary to deal with it, cholera can be easily checked." More district medical officers are required.

As regards sanitary works in general there is not much to be recorded. "On the whole, it may be said that the policy of framing rules and regulations for villages is the failure it deserves to be. . . . The villagers do not want rules and regulations, and in this respect do not differ from any other rural population. They do want material

assistance, which it is within the power of the district boards to give. Instead of framing rules the district boards should concentrate on the policy urged by the sanitary board—a district health agency, and a standard of one dispensary per ten square miles. . . . The rural water supplies in large areas of the province are in a deplorable state, and the sanitary board has the utmost difficulty in getting projects put forward for the improvement of this state of affairs." This appears to be rather pessimistic; on the other hand, a long list of works of public utility, constructed by private individuals at their own expense, shows that there exists a very great deal of public spirit among, at any rate, some classes in the province, which deserves, and, no doubt, receives due recognition.

CANADIAN MEDICAL DIRECTORY, 1923.

The sixth edition of the Canadian Medical Directory contains over 450 pages of text, and is divided into three parts. The first part deals with information concerning the reciprocity of medical licences between Canada and Great Britain, the Medical Council of Canada, and the Canadian Medical Register; the universities of the Dominion; Soldiers' Civil Re-establishment Hospitals; agencies for diagnosis and treatment of tuberculosis; and physician-coroners and specialists in the various provinces. The second part contains, under a heading for each province, full particulars of medical laws and regulations, lists of colleges, departments of public health, hospitals, sanatoriums, &c., and medical associations and medical journals, together with place lists of physicians, surgeons, druggists, and dentists. The third part comprises alphabetical indexes of all names of physicians, surgeons, and dentists, and general lists of veterinary surgeons, opticians, chemists, chemical companies, dental laboratories, and dental supply manufacturers, &c., in Canada and Newfoundland.

CAMPAIGN AGAINST MALNUTRITION IN AMERICA.

A PAMPHLET prepared by an Advisory Committee on Foods and Nutrition of the National Child Health Council has just been issued as a bulletin by the United States Public Health Service (Bulletin No. 134, 1923). It is the outcome of a study into the incidence of malnutrition amongst children in the U.S.A., the principal causes of malnutrition being discussed, and suggestions being made for preventive and corrective measures. Among the common causes of malnutrition are mentioned physical defects, such as nasopharyngeal obstructions, carious teeth, and other more serious conditions. In many instances the correction of such physical defects is all that is necessary to give a child the chance to develop normally. Other causes are improper diet and faulty health habits, lack of home discipline, faulty posture associated with over-fatigue, inadequate and unsatisfactory sleeping accommodation, as well as more general community conditions—bad housing, insanitary school buildings, atmospheric contamination, and the like. Suggestions for a campaign to combat malnutrition include: (1) Preventive nutrition work, as part of a programme of health education for all normal children of school age; (2) corrective work for school children who are physically subnormal and in need of special attention; (3) nutrition work with children under school age, both normal and subnormal.

Special emphasis is laid on the value of work among children of pre-school age, which should tend to reduce the necessity for corrective measures among school-children. In addition to thorough health examinations and medical supervision, home visiting is regarded as vital, the visits working with the mother, and helping her to correct unfavourable conditions. It is recognised that the problem in rural districts presents different features from that in cities, and suggestions are made by which local interest may be aroused and local service enlisted. The pamphlet may be studied with profit by all those who are working on cognate lines in this country.

Messrs. William Heinemann (Medical Books), Ltd. will shortly publish "Aromatics and the Soul," by Dr. D. McKenzie and "The Hygiene of Marriage," by Mrs. I. Hutton, M.D.

By a regulation dated May 16th the Home Secretary has revoked No. 1 of the Dangerous Drugs Regulations, 1922 (S.R. & O. 1922, No. 1087), which provides that a prescription for dangerous drugs may not be given for the use of the prescriber himself.

Circular 325, dated July 17th, 1922, with reference to prosecutions for selling milk deficient in fat, has been withdrawn by the Ministry of Health. This circular has not produced the effect which was intended, and the Minister expresses its reliance on the responsible local authorities to administer the Sale of Food and Drugs Acts with fairness and consideration.

The Linacre Lecture

ENTITLED

GLIMPSES OF THE HIGHER MEDICINE.

Delivered at Cambridge on May 5th, 1923,

By ARCHIBALD E. GARROD, K.C.M.G.,
D.M., LL.D., F.R.S., F.R.C.P.

REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD;
CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL
AND TO THE HOSPITAL FOR SICK CHILDREN.

To me, as a member of a university which numbers Thomas Linacre amongst her honoured sons and benefactors, the invitation to deliver the lecture which he founded in the sister seat of learning is a great honour and privilege, for which I offer my sincere thanks to the Master and Fellows of St. John's College.

Those of us who entered upon the study of science 50 years ago have lived through stirring times. We have witnessed not only a rapid growth of natural knowledge, but also profound changes of outlook. We are like crater-dwellers who have climbed, step by step, the enclosing heights, and look over the edge upon unexplored regions beyond. Conceptions which seemed to be founded upon solid rock have been shown to be unstable, and a new and not merely a more ample science has come into being. The rigid and immutable atom has been revealed as a microcosm, a storehouse of energies which we can neither utilise nor control. Even Newton's laws no longer suffice; space is awry and all is relative. A new and higher chemistry deals with such phenomena as radio-activity and atomic degradation; with new entities such as emanations and isotopes. The barriers between chemistry and physics are broken down, and by the study of the properties of colloids we may hope, in the end, to solve the riddle of life. The higher biology, which had its beginnings with Darwin, Wallace, and Huxley, with Mendel and Francis Galton, is becoming permeated by chemistry and physics, and has become an experimental science as well as a science of observation.

We, too, who pursue the science of medicine are looking over the edge, have entered upon new and unfamiliar ground, and have obtained glimpses of a higher medicine. By far the most important factor in this change of outlook has been the growth of bacteriology and protozoology. These have revealed the actual agents which produce disease, the ways in which they are conveyed to and enter the organism, and are bringing to light the phenomena of immunity. Moreover, they supply us with new methods by which to combat disease, and have rendered possible the triumphs of preventive medicine and aseptic surgery. Only those who lived in the days before bacteriology can realise the revolution in medical thought which it has brought about, and even they fail to realise it fully, so gradually have they adapted themselves to each fresh advance of knowledge.

A second potent factor has been the progress of biochemistry, the science which reveals the composition of the living tissues, the nature of the metabolic processes of which they are the seats, and the disturbances of those processes which are wrought by disease. We have been taught to think of pathology in terms of the cell, but we are learning to think of it in terms of the molecule. As was foreshadowed by Herbert Spencer many years ago, and as has been urged in recent years by various authors, it is not in so highly organised a structure as the cell that we should seek for the beginnings of life, but rather in the molecule so complex and unstable that, in a suitable colloidal environment and in the presence of catalytic agents, it breaks down and is reconstructed.

It is between the active and inactive molecule that the unbridged gap exists rather than between the unicellular organism and the elephant or tree, which are but nations of specialised cells. Only the molecules of proteins possess the required complexity and instability, and all evidence points to the proteins as the vehicles of life.

It is hardly needful nowadays to argue that animals and plants of different genera and species differ in their chemistry as they do in their structure. This idea, although it is not much older than the present century, is already widely accepted by biologists, and permeates the most recent literature of their science. Their acceptance of it is mainly based upon the results of the so-called biological tests, the precipitin reaction and the phenomena of protein shock. But we have no need to rely upon such ultra-chemical evidence alone, for strictly chemical methods provide ample proofs of its truth. Some such evidence was brought together by the late Prof. Huppert, of Prague, in a masterly Rectorial address delivered in the year 1896. That address, which had for its title "Die Erhaltung der Arteigenschaften," was published only in pamphlet form, and is not easily accessible, which is unfortunate, seeing that it contains not only one of the earliest, but also one of the most suggestive and convincing expositions of the theme.

It is a well-known fact that the hæmoglobins of animals differ in crystalline forms, and Rollet showed that when the laked blood of a squirrel is mixed with that of a mouse the squirrel and mouse hæmoglobins crystallise out in their characteristic forms. Reichert and Brown also detected minor differences of crystalline behaviour in the hæmoglobins of closely allied species, and differences of iron content have also been shown to exist. Presumably the differences lie in the complex globin, and not in the comparatively simple hæmatin. That the fats of different animals differ in composition is also well known, but a foreign fat can be stored and utilised. The tissues of higher animals contain the same elements, combined in various proportions, but amongst the invertebrata other elements are met with, such as copper in the hæmocyanin of crustaceans and molluscs. Nor is this true of invertebrata alone, as witness the presence of copper in the red pigment of the feathers of the plantain-eaters, which has such strange affinities with hæmoglobin and hæmatin.

Not only are the materials of which the tissues are composed generic or specific, but also the products of the metabolic processes. Evidence of this is afforded by the specific bile-salts of certain mammals, and by the wide differences in the proportions of the various purin substances in the excreta which have been described by Andrew Hunter, by the presence of cynurenic acid in the urine of animals of the canine tribe, by the sepia of the cuttlefish, and the mephitic odour of the skunk. The vegetable kingdom also affords very many examples, but those which have been quoted must suffice.

The teasing out of the protein molecules, by Emil Fischer and those who have carried on his work, has revealed possibilities of almost infinite variety in the groupings and proportional representations of the 20 odd amino-acids and diamino-acids of which the protein molecules are built up. The possible arrangements in which each such fraction is represented once and only once exceeds a million millions, and if we allow for the fact that some proteins are poor and some are rich in particular fractions, and that in others some amino-acids are not represented, it is obvious that we are confronted with figures such as those with which astronomers deal. We may well believe that there are special proteins for every species, and indeed for every individual in a species. We cannot doubt that in such compounds the specific differences mainly lie, and even if certain highly specialised proteins, such as those of the crystalline lens, are common to many species, that does not invalidate the general law. In this connexion the precipitin test is of very special value, for it shows that the more nearly

genera or species are allied, the more closely do their proteins approximate.

To a large extent bodily form and chemical structure go hand in hand, and the view that the form of an animal or plant is determined by its chemical constitution is now held by not a few biologists. But how this comes about is as yet an unsolved problem. The relation of crystalline form to chemical composition offers an obvious analogy, but one which must not be stretched too far. It is a far cry from the cube or octahedron to the webbed foot of the duck or to the highly specialised hand of man. Leduc approached the problem by the study of the forms produced by osmosis, which often bear such weird resemblance to animal and vegetable structures, and others have sought for clues in the workings of the endocrine glands, some of which have a remarkable influence on bodily form. But it seems to me that the strongest argument that can be adduced in support of the hypothesis that bodily form depends upon chemical structure is based on the fact that the germinal cells of different animals, which resemble each other so closely in structure, and even the chromosomes of their nuclei, obviously include factors which determine both the forms and metabolic peculiarities of the organisms which originate from them.

If it be the fact that genera and species are chemically diverse, it must also be the case that the diversity extends, in some degree, to the individual members of a species. Although strictly chemical evidence of such individual differences are not yet forthcoming, they nevertheless reveal themselves in various ways. The need for the selection of blood from donors of a particular group, if transfusion is to be carried out with success, is a case in point; and further evidence is afforded by personal idiosyncrasies to special foods and drugs, by the colours of skin, hair, and eyes, and by individual liabilities to, or immunity from, certain infective maladies. We may easily suppose that when divergence exceeds a certain limit, sterility may result from incompatibility of the germinal proteins, and that in this way specific characters become established, and the characteristics of the species are preserved.

It must needs be difficult to distinguish small deviations from the normal metabolic scheme of a species from the innumerable disturbances which disease brings in its train, but there are met with in rare cases gross variations which are obviously congenital. These inborn errors of metabolism, such as alcaptonuria, cystinuria, and hæmatoporphyria congenita, are in a high degree hereditary, and behave, for the most part, as Mendelian recessive characters. We can hardly doubt that those which we know are only samples of a much larger group, and attract attention because they advertise themselves in conspicuous ways. The more closely these errors are studied, the more probable does it appear that in each instance the fault lies in the failure of a special enzyme, which is responsible for some particular step in normal metabolism. It would appear that the individual protein fractions, or groups of closely akin fractions, such as tyrosin and phenylalanin, are dealt with in successive stages by appropriate enzymes. If one step is missed the intermediate product in being is excreted as such, or in a slightly altered form. If, however, the default be at an early stage of catabolism, and a process such as desamination, which is common to all the fractions, be involved, a wider effect is produced. Thus in cystinuria various amino-acids may be excreted in addition to cystin, and all without the loss of their amino groupings. In alcaptonuria, on the other hand, only tyrosin and phenylalanin are implicated, and the other protein fractions are dealt with in the ordinary way.

If it be granted that the individual members of a species may vary from the normal of the species in chemical structure and chemical behaviour, it is obvious that such variations or mutations are capable of being perpetuated by natural selection; and not a few biologists of the present day assign to chemical

structure and functions a most important share in the evolution of species. This aspect of evolutionary thought was emphasised by Prof. Goodrich in his address to the Zoological Section of the British Association in 1922.

We may picture each cell of a living organism as a seat of intense chemical activities. In it are carried on processes of oxidation and reduction, of destruction and reconstruction, side by side and without any mutual interference. The study of colloidal chemistry is helping to throw light upon these marvellous intracellular activities, and upon the enzyme actions by which they are brought about. If left uncontrolled, these processes would run riot, and it is obvious that all the processes in the living organism are under efficient control. In no other way can be explained the average height and weight of human beings, the uniformity of the body temperature, the standard blood pressure, and the more or less uniform output of the various end-products of metabolism. It is equally obvious that the control is exquisitely adaptable to changes of the external temperature, to the needs of the growing organism, and to the conditions present in disease. Such a control cannot be one-sided, and involves a balance of opposing factors.

In the more recent years we have learned much concerning the mechanism by which this is effected. The agents of control are the hormones produced by the endocrine glands, chemical compounds of no great complexity. Two such hormones have been isolated. The nature of adrenalin and of thyroxin has been investigated by strictly chemical methods, their composition is established, and the synthesis of adrenalin has been effected. The endocrine glands are themselves under the control of the sympathetic nervous system, and the control is to some extent automatic. The supply of a hormone is regulated by the demand, as is the gas-supply of an incubator. There is much evidence which points to a balance of the endocrine glands, some of which coöperate whereas others secrete antagonistic hormones. We may picture them as a system of weights and pulleys, in stable equilibrium, in which removal of any one weight causes the whole system to hang awry.

The periods of activity of some of the endocrine glands covers only a part of the life-time of the individual. The thymus soon goes out of action, and there is some evidence that the pineal ceases to function at puberty. At puberty also the gonoids become active and cease to function at the menopause. The phenomena of puberty may be regarded as signs of the readjustment of the endocrine balance, as also may those of the menopause. The enlargement of the thyroid which is so common in girls at puberty, and the obesity which so often follows the menopause, are minor indications of these readjustments.

Clinical observation reveals conspicuous differences between the organism of the child and that of the adult. Some maladies occur only in children, and others which attack individuals of all ages present widely different clinical pictures in adults and children respectively. The lesions produced by the tubercle bacillus and the pneumococcus differ in their seats and characters in children and adults, and—to select a specially striking example—rheumatic fever in a child is very unlike the same disease in an older patient. Such differences supply the justification for the erection of pædiatrics into a special branch of medical study. Some of these differences depend upon the immaturity of the tissues, and it would not be justifiable, in the present state of our knowledge, to attribute them to the changes in the endocrine balance, but they may well have a chemical basis.

The orderly sequence of metabolic changes which is at work in the normal organism is profoundly disturbed by the incursion of the agents of disease. Elaborate devices are called into play to destroy the invaders and to render inert their toxic products. Very often the invaders fail to gain a foothold and our natural defences avert from us many more such

attacks than we wot of. If a foothold be obtained the protective mechanisms may succeed in localising the mischief, and a local inflammation results, but from such a focus virulent poisons may, as in tetanus, be carried to remote parts of the body. Even if the local defences be broken down, and general infection results, the means of defence are not exhausted, the tissues often win the day in the end, the invaders are destroyed, and the patient recovers. The mobilisation of the phagocytes plays an important part, but some of the defensive mechanisms are frankly chemical, such as the neutralisation of acids by ammonia, and the combination of aromatic poisons with glycol to form the hippuric acids, or with sulphates to form aromatic sulphates, whereby they are rendered innocuous until they can be got rid of by excretion. Others are still beyond the reach of strictly chemical investigation, such as the formation of antitoxins and bactericidal substances, and the other substances which the modern study of immunity has revealed, but which are still seen "through a glass darkly." We cannot doubt that these protections are products of natural selection, for it is obvious that those organisms which are best armed against their natural enemies are the fittest to survive.

The discovery of these wonderful protective mechanisms has opened the eyes of those of us who pursue the science and art of medicine to the shortcomings of our own therapeutic methods, and the immense superiority of nature's drugs. We have come to realise that instead of commanding the forces engaged in the fight with disease, with the body of our patient as the battlefield, we are but his allies in the combat which he is himself waging against the enemies which assail and threaten to overwhelm him. In response to this lesson we try to make use of nature's own remedies, with results which are sometimes brilliant, and often encouraging, in spite of the defects of our technique. When the various protective agents have been isolated, so that we can give them in pure forms, and freed from extraneous substances which hamper their use, we shall be far better equipped than we are at present for the fight with disease.

The toxic substances are probably of several kinds. Some may be compared to the poisons which are formed by certain plants, such as atropine and strychnine. Others may, as Abderhalden suggests, be intermediate products of the breakdown of bacterial proteins, and others, again, the actual proteins of the main invaders, which produce the morbid effects common to foreign proteins in general. It is only in recent years that we have come to realise how important the part played by protein poisoning, and protein shock, in shaping the clinical pictures of various maladies, and not only of those which result from bacterial or protozoal infection. Serum sickness, which so often follows an injection of a serum after an interval of some days, is curiously reminiscent of syndromes which are produced by bacterial infections. Pain and swelling of joints, fever, and an erythematous or urticarial rash are its outstanding symptoms, and the association of lesions of the joints and skin are often observed in disease. The transitory arthritis of pneumonic fever and the erythemata which sometimes accompany it may possibly result from poisoning by bacterial proteins, and such influences may have a share in shaping the clinical pictures of the exanthemata.

Asthma offers the best known and most obvious example of a malady in which hypersensitiveness to foreign proteins plays a conspicuous part. The asthma syndrome may be caused by foreign proteins which gain access to the organism by way of the naso-pharynx, conjunctiva, or the mucous membrane of the alimentary tract. In some cases the provoking agent is a pollen, as in the familiar hay asthma, in others the hair or emanations of an animal, such as a cat, horse, or guinea-pig, and in yet others a food protein, such as casein or egg-albumin. The attacks may cease when the patient is protected from the exciting cause, or when he has been desensitised by

the administration of the peccant substance in small graduated doses.

We are probably justified in referring to the same cause certain periodic diseases in which the recurrent symptoms are such as foreign proteins are known to produce. Henoch's purpura is one of these, and erythemata sometimes recur in this way. But one of the most interesting and remarkable of such manifestations is the periodic swelling of the knees, and sometimes of other joints, which is known as intermittent hydrarthrosis. The attacks recur with almost mathematical regularity, so that the patient can make his arrangements in anticipation of their return. The interval varies in different cases, but is usually from six to eight days, and the duration of the attack is about three days. Joints which have been seriously damaged by any form of arthritis may be seats of the trouble, but more often the knees appear perfectly normal between the attacks, at least in the earlier stages of the complaint. That the articular structures are not primarily at fault is shown by the facts that the attacks almost always cease during a pregnancy, but recur after delivery, and that active local treatment of an affected joint may be followed by transfer of the attacks to the corresponding joint of the opposite limb. In some cases giant oedema of the lip or eyelid may recur with each articular attack. The easiest explanation of the regularity of recurrence is that each attack produces a temporary desensitisation of the patient.

The cyclic vomiting of children affords yet another example, and just as patients may grow out of their sensitiveness to a special protein food, so such cyclic vomiting usually ceases when the child grows older. Such maladies serve to illustrate a general law that whereas the intruding agents are the actual cause of disease, the reaction of the patient's tissues shapes the clinical picture.

Another potent factor in not a few diseases is disturbance of the balance of the endocrine glands. The study of the functions of these glands, which has been carried on by many observers since Addison published his classical monograph upon the disease, or rather syndrome, which bears his name, has opened up a most fascinating field of physiology and medicine. Nature's experiments and man's have thrown much light upon their several functions. They have revealed the influence of the thyroid upon metabolism as a whole, that of the pituitary upon growth and fat storage, that of the chromaffin tissues and posterior lobe of the pituitary upon blood pressure, and that of several of these glands upon carbohydrate metabolism. These are only a few examples of the manifold endocrine activities which may be thrown out of gear when these organs are damaged by disease.

Many riddles are still unsolved. We do not know what purpose is served by the apposition, in what is from the anatomical standpoint a single organ, of glands of widely different functions. The pituitary consists of two, if not three, such structures. Much of the chromaffin tissue is wrapped round by the adrenal cortex, and in higher animals what may be called the gland of Langerhans is scattered in fragments through the substance of that great digestive gland, the pancreas.

As I have already mentioned, some of the endocrine glands are obviously antagonistic in their functions, so that when one is thrown out of action its antagonist tends to run riot, whereas others appear to act in alliance. The familiar signs of myxoedema, cretinism, and cachexia strumipriva cannot obviously be attributed to the thyroid gland, the functions of which are in abeyance, but to the uncontrolled working of other endocrine organs which the normal thyroid holds in check. Fröhlich's syndrome, or dystrophia adiposo-genitalis, with its combination of obesity and regressive infantilism, results from destruction of the pituitary, just as myxoedema does from destruction or atrophy of the thyroid, but the pituitary is a far more complex organ, and cases of hypopituitarism do not conform to type nearly so close as do those of

hypothyroidism. Some of the patients with this condition are not obese and in others infantilism is not conspicuous. Both myxoedema and Fröhlich's syndrome are but extreme examples, and between these conditions and normality all degrees of hypothyroidism and hypopituitarism are met with.

The evidence that some of the endocrine syndromes are due to over-activity of the glands involved is far less conclusive, and some investigators whose opinions are entitled to the greatest respect lean to the view that such maladies as acromegaly and exophthalmic goitre are due rather to a perverted than to an exalted functional activity, that not merely an excess of the pituitary and thyroid hormones are produced, but a wrong kind of hormone. The hypothesis that acromegaly is the result of hyperpituitarism involves the assumption that an adenoma of a gland may increase the output of its secretory products.

Nevertheless, it appears to me that the evidence for the hypothesis of hyperactivity outweighs that which can be advanced in support of the alternative hypothesis of perverted function. And in this connexion a case recorded by Notthafft is of special interest. A man who wished to reduce his weight, took, on his own initiative and without medical advice, a thousand five-grain tablets of thyroid extract in the space of five weeks. He developed the signs of exophthalmic goitre of extreme degree—namely, tachycardia, exophthalmos with lagging of the upper eyelid, tremor, and, be it noted, enlargement of the thyroid gland. His urine contained sugar, and the average volume passed daily amounted to 3000 c.cm. After the drug was stopped the signs disappeared, the glycosuria after ten days, the tremor after four weeks, but the ocular signs and the swelling of the thyroid persisted for about six months. We can hardly escape the conclusion that the enlargement of the thyroid in this case was a part of a vicious circle. The thyroid is controlled by the sympathetic nervous system, whereas thyroxin stimulates the sympathetic, and so the conditions exist which are needed to ensure auto-aggravation of the disease.

In order to show the kind of evidence upon which the hypothesis of an endocrine balance rests, I propose to select one particular example of endocrine antagonism, and that not one of the most familiar. It may be called the thyroido-pancreatic, or, more accurately, the thyroido-Langerhans syndrome. There is good reason to believe that these two glands are antagonists, that over-activity of the thyroid inhibits the islands and vice versa. Thus the administration of thyroid extract induces glycosuria, most readily in normal individuals to whom any dose is practically an over-dose. Even patients with myxoedema may excrete sugar in the course of treatment, if the dose given be beyond their requirement, although, as is well known, their glucose tolerance far exceeds the normal limit. On the other hand, glucose tolerance is often lowered in cases of Graves's disease; some patients pass sugar intermittently, and some acquire a veritable diabetes. Some, again, as Falta showed, pass fatty stools and are found to have morbid changes in the pancreas.

Far less familiar is the reverse of the picture—namely, the tendency of sufferers from disease of the pancreas to exhibit signs of over-activity of the thyroid. The most conspicuous examples are afforded by cases in which diabetes and exophthalmic goitre co-exist, and in which it can be shown that the excretion of glucose preceded by a considerable period the appearance of the signs of hyperthyroidism. Some diabetics exhibit an incomplete thyroidal syndrome, usually limited to the ocular signs. I can myself recall several such cases in which the prominence of the eyeballs attracted attention and von Graefe's sign was pronounced, but in which, at least in the early stages, the pulse-frequency was normal or even below the normal. In some of these cases tachycardia developed as time went on.

Some years ago Cohn and Peiser described a series of cases of acute and chronic pancreatitis in which similar symptoms were observed. Of the cases,

five in number, three were of acute hæmorrhagic, one of suppurative, and one of chronic interstitial pancreatitis. Von Graefe's sign was elicited in four, Moebius's and Stellwag's signs were present in all, and also tremor and dermatography. The authors wisely decline to base any sweeping generalisation upon so small a number of cases, but since their paper appeared I have been able to confirm their observations in several cases of acute pancreatitis. In a condition of such gravity these signs are apt to escape notice, unless specially looked for, seeing that they are never pronounced. On the other hand, the high glucose tolerance of myxoedematous patients points to over-activity of the islands when the control of the thyroid is removed.

Glycosuria is a symptom of various endocrine diseases, and, when met with, it suggests a similar antagonistic action of hormones. In acromegaly glycosuria is not uncommon, whereas in hypopituitarism glucose tolerance is raised, as it is in myxoedema. Injection of adrenalin is often followed by glycosuria, and in Addison's disease tolerance of glucose has been found to be increased.

That diabetes, as distinguished from the conditions classed under the names of renal glucosuria or glycosuria innocens, is essentially an endocrine disease is shown by experimental and clinical evidence, and notably by the effect of insulin in cases in which, apart from glycosuria, there are no indications of lesions of the pancreas. The recent work of Winter and Smith, in this place, gives an indication of the way in which insulin works by preparing glucose for utilisation by the tissues. Obesity also, which is often classed, with diabetes and gout, as a disease of metabolism, is certainly in many, and probably in all cases, due to disturbance of the endocrine balance. It is a prominent symptom of hyperpituitarism, of tumours of the adrenal cortex, and of suppression of the functions of the gonads. Obviously, then, the influence of disturbances of the endocrine balance in shaping the clinical pictures of disease extend far beyond the cases in which one or more of the glands of internal secretion are seats of tumours or other gross lesions.

The normal, orderly course of metabolism is clearly dependent upon the supply of necessary substances from without the organism: of oxygen, water, and inorganic salts, of an adequate supply of fats and carbohydrates, and of proteins from the materials of which a sufficiency may be obtained of the various amino-acids which are required for reconstruction into the specific proteins. It is obvious that any lack of such supplies will entail disturbances of the metabolic processes, and that withdrawal of any important group of foods will have conspicuous effects, as witness the acetonaemia which results from withdrawal of carbohydrates.

We have learnt in recent years that a due supply in correct proportions, of foodstuffs of which the value can be reckoned in calories—that is to say, of proteins, fats, and carbohydrates—does not alone suffice for the promotion of growth and maintenance of nutrition. Other food factors which do not rank as foods, but rather as exogenous hormones, are equally essential. The discovery of these vitamins, of which it is most appropriate that I should speak in this place, has opened up new vistas, and affords illuminating glimpses of the higher medicine.

How far the lack of vitamins is responsible for the production of particular diseases is still a highly controversial question, and we have much to learn concerning their nature and modes of action. The study of the so-called deficiency diseases, which are believed to result from shortage of vitamins, raises once more the interesting question of the way in which a negative factor can give rise to positively morbid changes. This question was already raised in connexion with myxoedema and Fröhlich's syndrome, and was met by invocation of the endocrine balance; but in deficiency diseases there is, as far as we know, no such balance to be invoked. We

must rather suppose that, to quote the words of McCarrison, "persons receiving too little vitamins are living in a state of potential morbidity, which may be converted into one of actual disease by a variety of factors that further exhaust metabolism." Amongst such factors are enumerated cold, damp, mental depression, overcrowding, and infective agents. Age, sex, personal idiosyncrasies, also play parts in the production and shape of deficiency diseases. Time will not permit me to discuss the various maladies which have been included in this class, nor their signs and symptoms, which embrace lesions of the bony structures and nervous system, oedematous swellings and lesions of the corneæ, nor to consider the parts played by external influences in their causation. I will therefore limit my remarks to scurvy, which may, without hesitation, be classed as a deficiency disease.

The influence of immaturity of the tissues is very conspicuous in that disease. The clinical picture of infantile scurvy, with its subperiosteal hæmorrhages, the exophthalmos which results from orbital hæmorrhages, and the exquisite tenderness which is one of its earliest symptoms, is so unlike that of the adult variety that continental observers long hesitated to include Barlow's disease in the scorbutic category. But the prompt response to antiscorbutic treatment leaves no doubt as to its nature. It is not improbable that the cutaneous hæmorrhages may be provoked by such slight traumatic influences as pressure on a part, and one is tempted to attribute the condition of the gums in young children to the cutting of the teeth. Undoubtedly scorbutic infants who have no teeth escape the lesions of the gums, save that they are seen over teeth which are on the point of eruption. In older infants the swelling and purple colour are limited to the neighbourhood of such teeth as have been cut. But no such explanation applies to the puffy gums of adults, and if this condition might be attributed to the sepsis which is so often present, sepsis cannot explain the affection of the gums over the teeth of infants which have not yet penetrated to the surface.

In pellagra, which also is probably a deficiency disease, the skin affection, from which that malady derives its name, recurs each year with the return of brighter days, and apparently has its exciting cause in some form of radiant energy, such as light or ultra-violet rays. Light undoubtedly exerts a profound effect upon living organisms, and, as is becoming more and more recognised, it is one of the potent external factors which influence disease. The subject has many aspects, as, for example, the protective action of surface pigmentation, the therapeutic value of protection of patients with small-pox from actinic rays, and the curative and bactericidal effects of light and ultra-violet rays. But here, as before, I will select one particular aspect—namely, the share of light in provoking lesions of the skin—which raises questions of special interest to physicians and chemical pathologists alike.

Hydroa vacciniforme is a rare form of bullous eruption which recurs in successive summers, and is confined to those surfaces of skin which are exposed to light. After each return the affected skin is left more and more severely scarred, affection of the conjunctivæ and corneæ may produce blindness, and the serious effects are loss of substance of the nose and ears and deformities of the hands. In some cases the patients have passed, from birth onwards, red skin which owes its colour to a pigment closely allied to, but not identical with, hæmatoporphyrin. This syndrome is apt to occur in several members of a family, and the porphyrinuria is evidently due to an inborn error of metabolism. In some cases the dark urine does not date from birth, but has been passed for months or years.

Tappeiner and Raab found that certain fluorescent pigments, of which eosin is one, sensitise such organisms as *Paramecium* to light. When a culture of *Paramecium* in water to which some such pigment has been added is in part exposed to, and in part shaded from, light, the organism is killed in the exposed

portion, but not in that which is shaded. Walther Hausmann showed that hæmatoporphyrin, which is a fluorescent pigment, has this power, and further, that when a white mouse receives a subcutaneous injection of 0.02 g. of hæmatoporphyrin it dies rapidly if exposed to light, but shows no ill-effects if kept in the dark. If, on the other hand, it be exposed to feeble light a chronic light disease is produced with purple swelling of the snout and ears leading on to necrosis, loss of hair, and other symptoms. The effect of the injection is only temporary, and if the animal is kept in the dark for a sufficient time, subsequent exposure to light does no harm. By a bold experiment upon himself, Meyer-Betz showed that similar effects are produced in human subjects. An intravenous injection of 0.2 g. of the pigment rendered him sensitive to light for three months. Bright light caused giant oedema, with pigmentation of excessive degree and other symptoms. More recently Howell has shown that fibrinogen also undergoes remarkable changes when exposed to light in contact with hæmatoporphyrin, and suggests that the pigment acts as a catalyst.

The metabolic porphyrins of urine and fæces, which have been thoroughly investigated on chemical lines by Hans Fischer, have similar, although less pronounced effects. In congenital porphyrinuria the presence of porphyrin in the tissues is shown by deep-brown pigmentation of the bones, and in some cases of the enamel of the teeth. Thus we are confronted by the fact that certain individuals who have in their tissues a pigment of proved photo-sensitising properties are prone to develop an affection of the skin which is obviously produced by exposure to light, and we cannot escape the conclusion that the presence of the pigment and exposure to light are jointly responsible for the cutaneous lesions. However, the matter is not so simple as appears at first sight. In some cases of life-long porphyrinuria there is no hydroa, and in some cases light appears to provoke both porphyrinuria and hydroa. Into the probable explanations of these discrepancies I cannot enter here. But allusion must be made to the fact that whereas Hausmann found that rays in the neighbourhood of 5000 were most active in producing symptoms in injected animals, it has been shown by Freund and others that actinic rays are the most potent in production of the lesions of hydroa. It is highly probable that in not a few cases of hydroa photo-sensitising substances other than a porphyrin are at work, but of these we know nothing as yet. This story of porphyrinuria and hydroa offers an excellent illustration of interaction of internal and external factors in the production of a characteristic clinical picture.

Another such example is afforded by cystinuria. Cystin is a substance eminently suitable for the formation of urinary calculi, and most cystinurics form such calculi sooner or later. But some escape such troubles, and it is probable that the exciting cause of calculus formation is an infection of the urinary tract, such as so commonly occurs.

Very few individuals exhibit such striking deviations from normal metabolism as porphyrinurics and cystinurics show, but I suspect strongly that minimal deviations which escape notice are almost universal. How else can be explained the part played by heredity in disease? There are some diseases which are handed down from generation to generation, which manifest themselves by no signs at birth or in infancy, but which tend to develop in later childhood or early adult life. Unlike congenital anomalies, they are progressive. Pseudo-hypertrophic muscular dystrophy is such a malady, as also are certain diseases of the nervous system such as Friedreich's ataxia, and myotonia congenita or Thomsen's disease. It is difficult to escape the conclusion that although these maladies are not congenital, their underlying causes are inborn peculiarities.

In support of this contention I may quote a remarkable malformation complex, of which a number of cases are on record, and of which, by the kindness of Dr. W. Stobie, I recently had an opportunity of seeing

a number of cases in members of a single family, and in several generations thereof. The association of blue colour of the sclerotics with fragility of bones was first described by Eddowes, and these conditions, which form the basis of the syndrome, are probably due to defective development of the fibrous tissues. The thin sclerotics allow the pigmented choroid to show through them, and hence their blue tint. In some six or seven of the affected families, including that which Dr. Stobie will record, there has been present a third factor—namely, progressive deafness due to oto-sclerosis—and this is confined to the abnormal members of the families in question. But the oto-sclerosis is not present from birth. It develops in later childhood or more often in early adult life, and gives rise to increasing deafness. It is characterised by lesions of the structures of the ear, one of which is fixation of the stapes by ankylosis.

Here, then, we have an acquired hereditary disease which occurs in intimate association with two congenital anomalies. If any external factor is its exciting cause we do not know, as yet, what that factor is.

Gout holds an intermediate position between the heredity maladies of early life and the diseases of elderly people. That it is hereditary in a marked degree has been shown for many centuries, as is evident from the letter in which the younger Pliny describes the death of his friend Corellius Rufus, who was a great sufferer from gout. The pathogeny of gout is still obscure, but even if the accumulation of uric acid in the blood be due to a defect of excretion, it may be that, as Minkowski first suggested, and as Gudzent holds, it is the uric acid which is at fault, and is present in an abnormal form or combination. An acute attack in a joint may be brought on by an indiscretion of diet or by a trifling injury. Even so slight a trauma as the syringing of an ear may provoke an acute attack in the pinna of a very gouty man. The liability of the tarso-metatarsal joint of the great toe is probably due to the insults to which that joint is constantly subjected. Articulations which are seats of lowered resistance, such as those which have suffered injury at any time, or those of paralysed limbs, are especially apt to suffer.

A member of a family in which the disease was previously unknown may develop gout under the influence of a sedentary city life, and a member of a gouty family may fail to escape it despite the strictest temperance in all things. The geographical distribution, racial incidence, and waxing and waning frequency of this malady suggest that many influences still unknown are concerned in its causation.

The diseases of the elderly, such as granular kidney, arterio-sclerosis, and osteo-arthritis probably have their exciting causes in the innumerable minimal insults to which the tissues, even of those who lead the most prudent lives, are subjected. They show some tendency to attack the members of certain families, but the hereditary element is not nearly so obvious as in gout. By osteo-arthritis I mean the insidious disease of one joint or many, met with in elderly people, which causes erosion of cartilages and osteophytic outgrowths around the articular surfaces. It shows itself clinically in the form of Heberden's nodes, malum coxae senile, and similar affections of other parts. The onset of osteo-arthritis of the hip-joint is often ascribed to an injury, and there is much evidence that ordinary wear and tear is a potent exciting cause of such changes, but these causes do not suffice to bring about such a sequence of progressive lesions of the articular structures, and there must be another underlying cause. That in some cases this is an error of metabolism the arthritis of alcaptonurics shows. The subjects of alcaptonuria fail to complete the catabolism of the tyrosin and phenylalanin of food and tissue proteins, and there circulates in their blood, and is excreted in their urine, an aromatic compound, homogentisic acid. Owing to its presence the urine reduces Fehling's solution and blackens on exposure to air.

As the years go by, but seldom before the lapse of 30 years, the cartilages of the alcaptonurics become blackened, and an unusual rigidity of the cartilages of the ears suggests that they undergo some structural change. This condition, to which Virchow gave the name of ochronosis, is manifested clinically by a blue tint in the hollows of the ears, where the black cartilages show through the skin, by brown patches upon the conjunctivæ, and sometimes pigmentation of the skin. Later still, such patients are prone to develop osteo-arthritic changes in many joints, both of the limbs and spine. Their stature is apt to be reduced, partly owing to kyphosis, but largely as a result of absorption of the intervertebral discs, and they develop a peculiar gait and stance. The association of the articular lesions with ochronosis is certainly not an accidental one. The clinical picture is characteristic and in a family which includes several elderly members with alcaptonuria and ochronosis, as in one described by Ueber and Bürger, all the ochronotic members may exhibit lesions of the joints and spine, from which the normal members remain wholly free.

All the evidence which I have laid before you in this lecture, and much additional evidence besides, tends to show that many factors are concerned in the causation of disease and in the shaping of its clinical pictures. Environment, that is to say healthy or unhealthy surroundings, atmospheric conditions, and personal hygiene, tend to favour or discourage the prevalence of maladies. The invasion of the organism by bacteria or protozoa, and the introduction of chemical poisons by way of the alimentary canal or respiratory tract are the essential causes of most diseases, and rank first in order of importance. Other external influences, such as traumata slight or severe, light and other forms of radiant energy, heat and cold play no unimportant parts. Lastly, negative external factors such as deprivation of essential foodstuffs or vitamins and insufficient supply of oxygen, are potent causes of disease.

But in addition to all these there need to be taken into account factors inherent in our patients. Susceptibilities or immunities which may be inherited from their forebears, or may be widely distributed in members of their race. In a mixed population, such as ours, the influence of race is much obscured, but the Jews, who although scattered amongst alien peoples have kept their race pure, have preserved their racial immunities and liabilities, and even their special tendency to certain inborn anomalies, such as pentosuria and Warren Tay's syndrome. Nor is evidence lacking that such peculiarities may originate de novo in an individual, but proof of this is difficult, seeing that a recessive characteristic may lie latent through generations.

Thus we are led back to something very like the doctrine of diatheses which was so much in vogue in the days of our grandfathers, but has fallen into disrepute, and finds little or no place in the medical teaching of to-day. Nor, if we read the literature on the subject, can we wonder that this is so. The doctrine came to the birth prematurely, and many of the arguments adduced in its support appear futile in the light of newer knowledge. Some of the definitions of the term are woefully obscure, and whereas for one author a diathesis was merely predisposition, for another it was a sort of chronic disease. In the "New English Dictionary" diathesis is defined as "a permanent (hereditary or acquired) condition of the body which renders it liable to certain special diseases or affections; a constitutional predisposition or tendency." In this limited sense, I, for my part, am compelled to admit the truth of the doctrine.

It has been one of my chief aims, in this discourse to show that such predispositions exist, and, moreover, that they have their origin in deviations from the normal metabolic scheme of the species. In short, diathesis is only another name for chemical individuality.

EMPYEMA IN THE FIRST TWO YEARS OF LIFE,

WITH A DISCUSSION OF THE VALUE OF IMMEDIATE RESECTION OF RIB.

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THAT empyema as a complication of acute pneumonia in the first two years of life has a distressingly high mortality has not escaped attention. Holt¹ quotes a series of 204 cases from the Infants Hospital of New York with a mortality of 74 per cent. in the first year of life and of 59 per cent. in the second. Many other similar statistics have been published, showing a mortality of about 60 per cent. for children under two years of age. After the third year the mortality falls to a very low figure. Reference to a large number of text-books, both of general medicine and of diseases of children, shows, however, that this high mortality in little children excites little comment or passes altogether unnoticed. As a rule it is suggested that a fatal result is due to delay in undertaking operation, to an unfortunate choice in the situation of the opening made into the pleura, to the pus becoming inoculated, or to failure of the lung to expand. The general impression conveyed is that such accidents are unusual and that recovery may be confidently expected. We have made a careful examination of the records of all cases of empyema in children under two years of age admitted into the medical wards of Guy's Hospital during the years 1911-20 inclusive. In all 52 cases were admitted, of which 13 recovered and 39 died. 11 of the 13 which recovered and 20 of the 39 which died were submitted to the radical operation of resection of a rib. In 19 cases no operation was performed, either because the child was thought to be too ill or because the diagnosis was not made during life. Examination of the history of these cases, we think, explains the discrepancy in the statement as to the prognosis in empyema. When empyema alone was present recovery invariably took place. The high mortality is not to be attributed to the failure to achieve satisfactory drainage or to any of the mechanical difficulties mentioned above. The infants died not of the empyema, but of the generalised pneumonic infection which preceded and persisted after the formation of the empyema.

Meta-pneumonic Empyema.

Of the 13 cases which recovered 12 were examples of what may be called in this sense *meta-pneumonic empyema*. That is to say, the empyema at the time the successful operation presented itself as a residual abscess in the pleura after the termination of the acute pneumonic process. The high mortality in infancy is due to peculiarities of the acute primary pneumonia of infancy, which, from its longer course and greater tendency to generalised infection of parts remote from the lung, seldom produces the meta-pneumonic type of empyema. It is always a favourable symptom when the rise in the temperature curve due to empyema is separate from and follows after an interval the rise due to the original pneumonic infection. This disposition, which is the rule with the short-lived lobar pneumonia of adults and older children, is, unfortunately, the exception with infants. In them, as a rule, the two curves are, as it were, superimposed one upon the other, and the empyema must be described as *syn-pneumonic*.

High Recovery Rate in Meta-pneumonic Empyema of Infancy Treated by Operation.

Of 13 cases which recovered 12 were meta-pneumonic, only one was syn-pneumonic. Of 39 cases which died, no statement can be made in five, either because

the clinical or post-mortem notes are deficient, or because the course of the case was unusual and difficult to interpret. Of the remaining 34 which died, all were definitely syn-pneumonic. No meta-pneumonic case died. In only two of the 12 meta-pneumonic cases (Cases 11 and 12) was almost the whole time of the illness spent in hospital under observation, so that the temperature chart records the initial pyrexia due to the pneumonia and later the irregularity of temperature due to the empyema. The other cases had passed through the original pneumonia and were admitted suffering from the residual empyema. In three cases long periods—three, five, and six months respectively—had passed since the pneumonia. In five cases the history was very indefinite, and though it was clear that the child had been ill, and was still ill, a definite diagnosis of pneumonia had not been made. All cases in this group, however, were alike in this, that they showed no symptoms of pneumonia at the time when the diagnosis of empyema was made. High temperature, rapid pulse, urgent and distressed breathing, cyanosis, delirium, meningismus, expressionless facies, &c., formed no part of the picture. Nor was there a history of a recent and sudden onset of pyrexia. The symptoms of the meta-pneumonic empyema were less striking. The mothers, as a rule, complained of the child's wasting, of an alteration for the worse in appetite, energy, and temper, of pallor, of a persistent dry cough, or of intermittent attacks of diarrhoea. When it had been recognised that the child had suffered and recovered from an attack of acute pneumonia, these indefinite symptoms were always dated from that attack and were regarded as an unsatisfactory convalescence from it. Examination showed a fretful, pale, wasted child with a normal or but slightly irregular temperature, who became dyspnoeic only upon exertion or after crying. In our series all of these quiescent meta-pneumonic cases recovered. All the others but one died.

Heavy Mortality from Syn-pneumonic Empyemata.

Of the 39 cases which died none was of the quiescent meta-pneumonic type described above. The interpretation of five (Cases 31, 32, 50, 51, 52) was difficult. The notes are appended without comment. The remaining 34 cases may be classed as definitely syn-pneumonic. In two of these the post-mortem reports are missing. Pneumonia, more or less extensive, is reported at the autopsy in 23 cases, acute or suppurative pericarditis in 10. One case had suppurative meningitis, one suppurative peritonitis, presumably of pneumococcal origin. In only one case (Case 33) was none of these fatal conditions present—the case of a young infant who died, a few hours after the resection of a rib upon the seventh day, of an acute streptococcal infection marked by high pyrexia and very rapid pulse. Acute pleurisy only was found, and there was no pneumonia and no pericarditis.

Effect of Operation in Syn-pneumonic Cases.

In the two indeterminate cases (Cases 31 and 32) which were submitted to operation the report records some temporary improvement as following the operation. For that reason they have not been classed as syn-pneumonic. In all but one of the 19 syn-pneumonic cases submitted to operation the clinical reports record either the absence of looked-for improvement or death within 24 hours. We believe that a comparison of the histories and charts of these syn-pneumonic cases with those of the meta-pneumonic cases, which all recovered, might have enabled this ill-result to be predicted with confidence. One of us, knowing nothing of the other circumstances of the cases, was enabled in almost every instance to state whether recovery or death had been the result by a glance at the record of temperature, pulse, and respiration during the first days in hospital, or, when immediate operation had taken place, by noting the single record of temperature, pulse, and respiration made at the moment of admission. Moreover, it is to be noted that of 19 cases operated upon, in nine death followed within 24 hours of operation. Nine died at varying intervals later. Case 13 is the only exception—the one

example of a case apparently syn-pneumonic which recovered after operation on the twenty-sixth day of the pneumonia. It is possible that the termination of the pneumonic process and the operation here coincided.

Period for Performance of the Radical Operation.

We think that it is clear that all meta-pneumonic empyemata should be submitted to operation as soon after the termination of the pneumonic process as possible. Delay from failure to recognise the presence of the residual collection of pus adds greatly to the risk of fibrosis and bronchiectasis in the lung involved, while after six or eight weeks there is an increasing risk that a fistulous communication with a bronchus may form. In meta-pneumonic cases the removal of the rib gives very free drainage and appears to be without risk.

We think it is equally clear that syn-pneumonic cases ought not to be operated upon by removal of a rib and with an anæsthetic until the termination of the pneumonic process. If pus in considerable quantity is present it should be removed by aspiration or continuous drainage, leaving the more radical operation to be performed later if necessary and if the child survives the pneumonia. If the syn-pneumonic cases are operated upon it appears that the mortality approaches 100 per cent. and that many of the deaths follow immediately upon the operation. As in the not dissimilar case of primary pneumococcal peritonitis, in which immediate laparotomy during the septicæmia is without benefit and may be followed by immediate death, the selection of the appropriate time for opening the residual abscess is the chief part of successful treatment.³

Causes of Death from Empyema in Young Infants.

It seems clear that the high mortality in young infants is not due to the presence of the empyema, but to the severity and long persistence of the underlying and preceding infection. The mortality of acute primary pneumonia in the first two years of life is very high, even in the absence of the complicating empyema—66 per cent. in the first year of life, 50 per cent. in the second.³ We may conclude that those children who present themselves with a quiescent meta-pneumonic empyema have been fortunate in contracting a mild and short-lived pneumonic infection or have a relatively high resistance. In general the acute primary pneumonia of infants has a much longer course than the typical lobar pneumonia of adults and cases of great severity often terminate fatally many weeks after the onset, even when no empyema is present. The age-limits within which we find this high mortality in empyema are precisely those within which we find acute primary pneumonia of infantile type. After the third year lobar pneumonia of adult type replaces the infantile form, and the prognosis at once improves. The pneumonia then has a trifling mortality, and if empyema occurs as a complication it tends to be meta-pneumonic in type. There is little in the study of these cases to suggest that the spread of the infection to parts remote from the lung, to the pericardium, the opposite pleura, the middle ear, the meninges, or the peritoneum is to be attributed to the presence of the empyema or that a more timely or more radical operation might have prevented this extension. There is some tendency to treat these remote infections as complications of the empyema. Thus Goodhart and Still⁴ regard them as emphasising "the importance of free drainage and the danger of delay." It may be that occasionally a collection of pus in the pleura lights up a second time a generalised septicæmic infection, but the accident must be very rare, perhaps as rare as the metastasis to the brain and the formation of a pulmonary cerebral abscess.

Certainly these additional infections, pericarditis, meningitis, otitis media, colitis, nephritis, and peritonitis, are encountered with considerable frequency in fatal cases of primary pneumonia of infancy whether empyema is present or absent.

CASE-NOTES.

1. Operation and Recovery (Thirteen Cases).

CASE 1. *Pneumococcal Empyema, Meta-pneumonic Type.*—Male aged 16 months. Convulsions six weeks before admission. Pneumonia diagnosed. Since then never really well. On admission "septic-looking," with an appearance of general neglect. Temp., normal; resp., 36. Dullness and distant bronchial breathing over whole of right lung; right chest completely opaque to X rays. Heart displaced to left. Aspiration; 22 oz. thick pus withdrawn. Cultivation gave pure growth of pneumococcus. Three days later excision of rib (six weeks after onset of illness). Uninterrupted recovery. Gain in weight in eight weeks after operation 4 lb. 4 oz.

CASE 2. *Empyema, Meta-pneumonic.* Male aged 13 months. Pneumonia five months before admission. Never well since; wasting, shortness of breath, and occasional vomiting. On admission, dullness over right lung, heart displaced one inch to left. Temp., 100° F.; resp., 56; pulse, 156. Resection of rib, half pint of pus evacuated. Rapid recovery. Discharged after five weeks, looking very much better.

CASE 3. *Pneumococcal Empyema, Meta-pneumonic.* Female aged 2 years. Pneumonia three months before admission. Continued ill-health. On admission temp. normal; resp., 36–40; pulse, 130–140. Resection of rib; purulent fluid escaped from right base. Cultivation gave a pure growth of pneumococcus. Rapid recovery.

CASE 4. *Pneumococcal Empyema, Meta-pneumonic Type.*—Female aged 15 months. Pneumonia four weeks before admission. On admission, temp. just above normal; resp., 36; pulse, 130. Needled, pus withdrawn left side. Cultivation, pure growth of pneumococcus. Resection of rib (in fifth week after onset of pneumonia). Recovery after eight weeks in hospital with some irregular pyrexia.

CASE 5. *Empyema, Meta-pneumonic.*—Female aged 15 months. Pneumonia six months previously, since when she had made no progress and had put on no weight. On admission temp. subnormal; resp., 36; weight, 12½ lb. Subcutaneous tissue of left chest (axilla) swollen and oedematous. Tender on percussion. Absolute dullness and bronchial breathing. Needled and pus withdrawn. Cultivation; mixed pneumococcus and *B. influenzae*. Resection of rib in twenty-fourth week after onset of pneumonia. Discharged well eight weeks later. Gained 2 lb.

CASE 6. *Empyema, probably Meta-pneumonic.*—Female aged 21 months. History quite indefinite. Had always had a cough, which became worse three weeks before admission. Wasted child with protuberant abdomen. On admission temp. almost normal; resp., 34–40. Dullness with bronchial breathing at right base. Lobar pneumonia diagnosed. Exploded 13 days after admission, and pus withdrawn. Resection of rib. Immediate improvement. Discharged in good condition 23 weeks later, having gained 3 lb. 2 oz.

CASE 7. *Empyema, Meta-pneumonic.*—Male aged 13 months. History indefinite. Ten days before admission temp. 102°; became better and relapsed again. On admission temp. normal; resp., 40; pulse, 140. Dullness and bronchial breathing over right lung. Two days later explored, clear fluid with "streaks of opaque fluid" withdrawn. Cultivations remained sterile. Rib resection 25 days after admission, purulent fluid evacuated. Cultivations sterile. Rapid improvement and discharged after ten weeks in hospital with great increase in weight.

CASE 8. *Empyema, Meta-pneumonic.*—Male aged 2 years. Brought to surgery for six weeks for obscure illness with vomiting. On admission temp. 99°; pulse, 160; resp., 60. Left side of chest dull. Immediate operation and evacuation of pus; cultivation gave a pure growth of streptococcus. Rapid recovery. Discharged five weeks later.

CASE 9. *Empyema, Meta-pneumonic.*—Male aged 9 months. Brought to surgery for 17 days with obscure illness with cough and vomiting. On admission temp. normal; resp., 36; pulse 140. Left base dull. Heart not displaced. Right lung normal. Left base opaque to X rays. Immediate operation and pus evacuated. Discharged after eight weeks, having gained 3 lb.

CASE 10. *Empyema, Meta-pneumonic.*—Female aged 11 months. History quite indefinite; cough for three months. On admission temperature normal. Left base dull. Explored and pus withdrawn. Resection of rib on day of admission. After two weeks of irregular pyrexia, rapid improvement. First three weeks after operation gained 3 lb. Later developed otitis media and radical mastoid performed. Last five weeks gained a further 3 lb. Discharged after 27 weeks.

CASE 11. *Empyema, Meta-pneumonic.*—Male aged 20 months. Admitted on sixth day of pneumonia, temp. averaging 103°; resp., 60; pulse, 150. Apparent crisis on eleventh day, temperature falling to 100°, respirations to 40, and pulse to 120. Three days later temperature rose to 103°. Whole of right side dull and distant breath sounds. Heart one inch outside nipple line. Explored and pus withdrawn. Resection of rib following day. Temperature immediately fell to normal. Uninterrupted recovery.

CASE 12. *Empyema, Meta-pneumonic.*—Male aged 15 months. Two days' history of high pyrexia and convulsions. On admission breathing rapid, averaging 60; pulse 150–160; temp. persistently above 104°. Crisis on ninth day of illness. Lobar pneumonia (right lower lobe) had been diagnosed. A week later temperature rose again to 102°. On fourteenth day of illness heart displaced to left. Chest explored and 5 oz. turbid fluid withdrawn. Cultivation gave pure growth of pneumococcus. Resection of rib following day. Slow recovery with repeated pyrexial attacks and stationary weight. Discharged after 1 weeks.

CASE 13. *Empyema, Syn-pneumonic*.—Male, aged 21 months. Admitted on fifth day of illness with pain in chest. Temperature remained irregularly high for three weeks, from 102° to 103°; pulse, 168 to 140; respirations from 40 to 60. Dullness and fine crepitations at left base. Heart inside nipple line. Child drowsy. Remaining parts of lungs harsh, dry breath sounds, no râles or rhonchi. Persistent coryza. Three weeks after admission greenish pus withdrawn from left base followed by resection of rib. Irregular pyrexia continued for a week longer; thereafter rapid improvement.

2. Death after Operation (Twenty Cases).

CASE 14. *Empyema, Syn-pneumonic*.—Female aged 13 months. Six weeks before admission, pneumonia diagnosed; three weeks later "fluid in chest." On admission temp., 100°; pulse, 140; resp., 60–70. Edema of skin at right base. Bronchial breathing both bases. Explored on right side and pus withdrawn. Resection of rib same day (in sixth week of illness). Cultivation gave pure growth of pneumococcus. Temp. remained up 100° to 101°, increasing dyspnoea. Died four days after operation. Post mortem: Empyema right side; broncho-pneumonia, bilateral.

CASE 15. *Empyema, Syn-pneumonic*.—Female aged 24 months. Edema of face and legs of sudden onset 14 days previously. On admission temp. 98°; pulse, 130; resp., 40. A week later temp. rose to 102°. Dullness and moist sounds appeared at left base. Empyema diagnosed. Explored and pus obtained. Operation same day (twenty-first day of illness). Temp. remained high; resp. increased. Condition worse. Died 11 days after operation. Post mortem: Pyogenic membrane over left lung; no free pus; pneumonia left side. No pericarditis.

CASE 16. *Empyema, Syn-pneumonic*.—Male aged 1 year. Five days previously shivering convulsions and rapid breathing. On admission temp. 105°; pulse, 160–170; resp., 50. Slight dullness in left axilla. Bronchial breathing and dullness in right axilla. Condition remained unchanged for ten days then complete dullness at left base. Explored, 2 oz. pus withdrawn. Resection of rib under local anaesthesia on twentieth day of illness. No improvement. Death the same day. Post mortem: Bilateral empyema, consolidation and compression of both lungs; bronchial glands inflamed, pneumococcal pericarditis.

CASE 17. *Empyema, Syn-pneumonic*.—Male aged 9 weeks. Cough for one week. No other history. On admission temp. 103°; pulse, 146. Dullness and absent breath sounds base of right lung. Dullness at apex and base of left lung. Explored at right base and pus obtained. Resection of rib on seventh day of illness. No improvement. Temp., 105°; resp., 84. Death the next day. Post mortem: Lower lobe of right lung, and apex and lower lobe of left lung solid with confluent broncho-pneumonia.

CASE 18. *Empyema, Syn-pneumonic*.—Male aged 2 years. A week's history of cough with pain in the chest. Diagnosed as pleurisy with "inflammation of the lung." On admission, temp. averaged 103°; pulse, 160; and resp., 80. No change for 14 days, then subsidence of pyrexia for a week. Temp. rose again, paracentesis on twenty-first day of illness, and pus obtained. Resection of rib on thirtieth day of illness and a small amount of pus evacuated. No improvement, increasing exhaustion and death 12 days after operation, on forty-second day of illness. Post mortem: Left pleura adherent to diaphragm; lower lobe adherent and covered with buttery lymph; no accumulation of pus; 2 oz. turbid fluid in pericardial sac; generalised pericarditis.

CASE 19. *Empyema, Syn-pneumonic*.—Male aged 2 years. History of sudden illness a week previous to admission accompanied by fever, noisy rapid breathing, and delirium. On admission temp., 105°; pulse, 168; resp., 60. Dullness and bronchial breathing over whole of left base. Condition unchanged and continuous pyrexia for six weeks. Left base explored and pus withdrawn. Operation on forty-second day of illness. Death next day. Post mortem: Left lung very small and contracted; extensive broncho-pneumonia on right side.

CASE 20. *Empyema, Syn-pneumonic*.—Female aged 19 months. History indefinite. Cough for a month. On admission irregular pyrexia averaging 104°; pulse, 184; resp., 48. Dullness and râles at left base. Explored and pus obtained. Resection of rib on twenty-third day after admission. Small quantity of thick pus evacuated. No improvement. Death 19 days after operation. Post-mortem report missing.

CASE 21. *Empyema, Syn-pneumonic*.—Male aged 6 months. Admitted on fifth day of illness of doubtful nature but sudden rigidity. Temp., 105° and remained so throughout; pulse, 180; resp., 68. Dullness at right base. Explored and pus obtained. Resection of rib on sixth day of illness and a large quantity of thick pus evacuated. Cultivations gave a mixed growth of *Streptococcus longus* and *Staphylococcus albus*. Drained well, but no improvement. Died four days after operation, on ninth day of illness. Post mortem: Right lung considerably compressed; pleura thickened; patches of broncho-pneumonia.

CASE 22. *Empyema, Syn-pneumonic*.—Male aged 11 months. Feasles six months previously. Fourteen days' history of cough and sleeplessness. On admission temp. 102°; pulse, 36; resp., 56–60. Dullness of left chest. Explored and pus obtained. Resection of rib same day. Cultivation gave a scanty growth of pneumococcus. No improvement. Subnormal temperature and death on twentieth day after operation. Post mortem: Evidence of empyema and broncho-pneumonia; recent lymph over whole of left side; small abscess where tube compressed lung; right lung showed broncho-pneumonia.

CASE 23. *Double Empyema, Syn-pneumonic*.—Male aged 11 months. Admitted on fourth day of sudden obscure illness. Temp., 105°; pulse, 164; resp., 60–80. Dullness of left lung in front and behind. Bronchial breathing in left axilla. Continuous pyrexia. Resection of rib on left side on twenty-second day of illness, and thick pus evacuated. Cultivation gave a pure growth of pneumococcus. Condition became worse. Râles at right base. Resection of rib on right side on the thirty-sixth day of illness. Thick green pus withdrawn. Death the next day. Post mortem: Broncho-pneumonia left lower lobe. Recent pleurisy and adhesions right lower lobe.

CASE 24. *Empyema, Syn-pneumonic*.—Female aged 16 months. History quite indefinite. Treated as an out-patient for a month for bronchitis. On admission continuous irregular pyrexia; pulse, 130; resp., 30. Dullness and bronchial breathing at left base. Condition unchanged. Resection of rib on twenty-fifth day after admission. Small quantity of pus evacuated. No improvement. Death five days later. Post mortem: Pleurisy both sides; no pus; left base consolidated; acute nephritis.

CASE 25. *Empyema, Syn-pneumonic*.—Male aged 6 months. Admitted on third day of illness with sudden onset, feverishness, and cough. Temp., 104°; pulse, 156; resp., 60. Bronchial breathing and râles both sides of chest. Resection of rib on left side on thirteenth day of illness after continuous pyrexia. Death next day. Post mortem: Left lower lobe solid; purulent lymph over left lung; right lower lobe airless.

CASE 26. *Empyema, Syn-pneumonic*.—Female aged 1 year. Admitted to isolation ward on fourth day of measles with cough and dyspnoea. Temp., 103°, and remained high throughout; pulse, 146; resp., 48–60. Bronchial breathing right base. Empyema diagnosed. Resection of rib on twenty-sixth day of illness and pus withdrawn. Direct examination of pus showed pneumococci. Signs of pneumonia now present on left side. Death 24 hours after operation. Post mortem: Both lungs full of broncho-pneumonia; excess of fluid in pericardium.

CASE 27. *Empyema, Syn-pneumonic*.—Male aged 15 months. No history given. Admitted with signs and symptoms of empyema on the left side. Immediate resection of rib and much pus evacuated. Death shortly after operation. Post mortem: Pleura covered with thick purulent exudate; left lung showed some red hepatisation; pyo-pericardium—much pus.

CASE 28. *Empyema, Syn-pneumonic*.—Male aged 2 years. Bronchitis for a month. Two days before admission, short dry cough, vomited, rapid breathing. On admission temp. 103°–104°; pulse, 150; resp., 50–60. Pyrexia remained high throughout. Dullness and crepitations at left base. Needed and pus withdrawn. Resection of rib on fourth day of illness, then foul-smelling pus evacuated. No improvement. Death thirteen days after operation. Cultivation of pus gave pure growth of pneumococcus. Post mortem: Right lung congested; left lung airless, well-marked bronchiectasis; trachea and bronchi congested and full of frothy mucus; bronchial glands enlarged; heart dilated.

CASE 29. *Empyema, Syn-pneumonic*.—Female aged 15 months. History indefinite. Cough and difficulty in breathing for a few days before admission. On admission temp. 104°; pulse, 160; resp., 76. Dullness over the whole of the right side. Immediate rib resection. Became steadily worse and died seven days after operation. Post mortem: Right pleura covered with fibrinous pus; patches of broncho-pneumonia at left base; confluent broncho-pneumonia right lung; some pericarditis.

CASE 30. *Empyema, Syn-pneumonic*.—Female aged 1 year. Three weeks' history of cough and dyspnoea. On admission temp. 99.4°, pulse, 140; resp., 60. Dullness left base. Resection of rib on twenty-third day of illness. Death the same night. Post mortem: Thick fibrinous exudate over left lower lobe, broncho-pneumonia in left upper lobe; some broncho-pneumonia in right lung; heart dilated.

CASE 31. *Empyema, Type Indeterminate*.—Female aged 23 months. History indefinite. One month's illness of doubtful nature. On admission temp. 102°; pulse, 156; resp., 64. Empyema, right side, diagnosed. Heart considerably to left. Resection of rib day after admission. Immediate improvement. Temp., 98.4°; pulse, 138; resp., 40. On twenty-fourth day after operation temp. rose. Condition worse and remained unsatisfactory with irregular pyrexia for three weeks. Death in seventh week after admission. Post mortem: Cavity in right lung opposite operation wound; left lung adherent to chest and airless; pericardium adherent to chest wall.

CASE 32. *Empyema, Type Indeterminate*.—Male aged 14 months. Onset indefinite. On admission temp. 103°; pulse, 150; resp., 60. Dullness at right base. Needed and pus obtained. Resection of rib third day after admission; pus evacuated. Cultivation gave *Staphylococcus aureus*. Some improvement for the next month, but temp. remained irregularly high (104°); pulse about 160; and resp., 56. Death in thirteenth week after operation. Post mortem: Suppurative peritonitis and pericarditis.

CASE 33. *Empyema*. Female aged 7 months. Admitted after about a week's illness with rapid breathing and fever. On admission temp. 105°; pulse, 180; resp., 60. Dullness at right base. Crackling and moist râles all over chest. Explored, thin purulent fluid obtained. Resection of rib on day of admission. Sudden death three hours later. Examination of pus showed many streptococci. Post mortem: Nothing but empyema found; whole of right lung completely airless from compression, and surface covered with a pyogenic membrane; no pneumonia visible on either side; left lung and pleura healthy; dilatation of right side of heart.

3. Death—No Operation (Nineteen Cases).

CASE 34. *Empyema, Syn-pneumonic*.—Male aged 10 months. Admitted to isolation ward 14 days after onset of measles. Cough and wasting since the third day of illness. On admission temp. 104°; pulse, 160; resp., 60. Dullness and bronchial breathing at left base. Temperature remained high throughout. Condition became steadily worse. Death seven days after admission. Post mortem: Localised empyema at left base; pleurisy over right base; extensive broncho-pneumonia of left lung and right lower lobe; recent pericarditis.

CASE 35. *Bilateral Empyema discovered Post Mortem. Syn-pneumonic*.—Female aged 15 months. Bronchitis with pyrexia for three weeks. Night sweats. On admission temp. 102°; pulse, 170; resp., 56. Impaired note all over chest. Sixteen days later physical signs less marked and temperature fell. Opaque to X rays under right clavicle. Confluent broncho-pneumonia diagnosed. Condition became worse. Death eighteenth day after admission. Post mortem: Consolidation of both lungs of lobar type. Bilateral empyema. Recent pericarditis.

CASE 36. *Empyema, Syn-pneumonic*.—Male aged 7 months. Four days' illness of doubtful nature. On admission right side dull to percussion and bronchial breathing. Very dyspnoeic, rapid shallow breathing, high temperature. Lobar pneumonia diagnosed. Death two days later in convulsions. Post mortem: Empyema on right side, 4 oz. pus; extensive pneumonic consolidation of both lungs.

CASE 37. *Empyema, Syn-pneumonic*.—Female aged 15 months. Admitted to isolation ward on fourth day of measles. Otitis media developed, and a week later bronchitis with a very high temp.; pulse, 170; resp., 70. Right side of chest needled on fifteenth day of measles and 4 oz. of turbid fluid removed. Death a few hours later. Post mortem: General pneumococcal peritonitis, broncho-pneumonia and empyema on right side.

CASE 38. *Empyema, Syn-pneumonic*.—Female aged 10 months. A week's history of cough. On admission temp. 102°; pulse, 170; resp., 70-80. Dullness at right base. Explored and pus obtained. Cultivation gave a growth of *Streptococcus longus*. Too ill for operation. Death the next day. Post mortem: Caseous bronchial glands; muco-pus in tubes, pleurisy over right lung; broncho-pneumonia in right lower and middle lobes and also of left lung; empyema right side.

CASE 39. *Empyema, Syn-pneumonic*.—Male aged 8 months. Cough and drowsiness for eight days. On admission temp. 103°; pulse, 140-180, resp., 60-80. Dull both sides of chest, especially right base. Râles all over chest. Diagnosed as broncho-pneumonia. Bronchial breathing at left base on seventh day after admission. Explored 2 oz. pus withdrawn. No improvement. Death 12 days after admission. Cultivation of pus gave *Micrococcus catarrhalis* and *B. influenzae*. Post mortem: Left lower lobe covered with thick buttery adherent lymph; broncho-pneumonia well marked in both right and left lungs; pericarditis; nephritis.

CASE 40. *Empyema, Syn-pneumonic*.—Male aged 6 months. Admitted moribund with broncho-pneumonia. Death same day. Post mortem: Broncho-pneumonia and an abscess cavity in right lung communicating with pleural cavity which contained 2 oz. pus.

CASE 41. *Empyema, Syn-pneumonic*.—Male aged 19 months. History quite indefinite; wasting and ill-health for some months. On admission slight pyrexia; pulse, 168; resp., 40. Dullness at left base. Broncho-pneumonia diagnosed. Both sides of chest explored but no pus obtained (a previous exploration had revealed pus). Death after seven weeks in hospital. Post mortem: Bilateral broncho-pneumonia with 2 oz. pus at right base; acute nephritis.

CASE 42. *Empyema, Syn-pneumonic*.—Male aged 9 months. History indefinite. Admitted with wasting diarrhoea and vomiting. Temp. subnormal. Died on the tenth day after admission with some pyrexia for the last two days. Post mortem: Broncho-pneumonia in both lungs; small empyema at right base.

CASE 43. *Bilateral Empyema, Syn-pneumonic*.—Female aged 15 months. Sudden dyspnoea 12 days before admission; three days later convulsions. On admission temp. 102°; pulse, 150; resp., 50. Great dyspnoea, signs of consolidation at right base, râles and rhonchi all over chest. A week later pulse 168, resp. 60, and continued so for a week. Death on the twenty-eighth day of the illness; pulse, 80; resp., 80. Post mortem: Confluent broncho-pneumonia of both lungs; suppurative meningitis; bilateral empyema.

CASE 44. *Empyema, Syn-pneumonic*.—Male aged 9 months. Indefinite history; cough for a month. On admission temp. 104°; pulse, 156; resp., 60-68. Lobar pneumonia, right upper lobe diagnosed. No operation. Death 13 days after admission. Post mortem: Lobar pneumonia right lobe, pleurisy, and 1 oz. pus at right base.

CASE 45. *Empyema, Syn-pneumonic*.—Male aged 15 months. A week before admission vomited, became feverish, dyspnoea, and diarrhoea. On admission temp. 103°; pulse, 144; resp., 44-56. Signs of lobar pneumonia at right base. Temperature continued high. Sudden collapse and death on twelfth day of illness. Post mortem: Empyema at right base. Purulent pericarditis.

CASE 46. *Bilateral Empyema, Syn-pneumonic*.—Male aged 12 months. Admitted to isolation ward for measles. On admission temp. 103°; pulse, 140-160; resp., 40. Five days later temp. 105°; pulse, 160; resp., 84. Râles all over both lungs. Temp. remained high. Sudden collapse and death 12 days after admission. Post mortem: Small empyema on both sides; extensive broncho-pneumonia; marked colitis.

CASE 47. *Empyema, Syn-pneumonic*.—Female aged 11 months. No history obtainable. Admitted very ill with subnormal temp.; pulse, uncountable; resp., 60. Left chest needled and pus found. Died before operation could be performed. Post mortem: Acute pleurisy right side. Thick, buttery, purulent lymph over whole of left lung. Left lung compressed and showed broncho-pneumonia. Acute pericarditis. Acute colitis.

CASE 48. *Empyema, Syn-pneumonic*.—Male aged 2 years. Two months' history of cough and vomiting. On admission pale, rapid breathing. Temp., 101°-2°; pulse, 180 (?); resp., 80. Marked dullness over whole of right lung, râles, and bronchial breathing. Explored and pus withdrawn. Too ill for operation. Oxygen and strychnine administered. Explored again. Breathing ceased during exploration. Artificial respiration. Death. Post mortem: Right-sided empyema; right lower lobe compressed, pleura thickened; early pleurisy left side; muco-pus squeezed from both bronchi. Bronchial glands enlarged.

CASE 49. *Empyema, Syn-pneumonic*.—Male aged 16 months. In hospital at ten months with broncho-pneumonia. Five days before admission vomited, and breathing became "difficult." On admission temp. 102°; pulse, 150-160; resp., 60. Explored five days later and 10 c.cm. pus withdrawn. Irregular pyrexia. No operation. No improvement. Death seventeenth day of illness. Cultivation of pus, *Streptococcus longus* and pneumococci. No post mortem.

CASE 50. *Bilateral Empyema. Type Indeterminate*.—Male aged 10 months. History very indefinite. Eight weeks ago diarrhoea, recovered. Four weeks ago return of diarrhoea. On admission temp. 102°; pulse, uncountable; resp., 36. Blue lips, semi-comatose. Pyrexia continued. Death seven days after admission. Post mortem: Acute enterocolitis; bilateral empyema.

CASE 51. *Empyema. Type Indeterminate*.—Male aged 6 months. History quite indefinite. Had been dieted for wasting. On admission temp. normal; ten days later temp. 105°; pulse, 150; resp., 56. Bronchial breathing and dullness at right base. Lobar pneumonia diagnosed. Crisis 11 days later. Right base still dull. Explored and pus found. Temp. rose to 103° on twentieth day after crisis, and remained irregularly high throughout. Subcutaneous abscess developed over site of needling. Eight weeks after crisis bronchial breathing at both base. Temperature became higher. Death 13 weeks after admission. No post mortem.

CASE 52. *Empyema. Type Indeterminate*.—Male aged 20 months. Eleven weeks before admission double pneumonia diagnosed. On admission temp., 98.4°; pulse, 144; resp., 40. Dullness and bronchial breathing left apex and right base. Explored third left space 1 oz. pus obtained. Temp. rose slightly. Further exploration without result. Cultivation gave a pure growth of pneumococcus. Decision not to operate. Increasing dyspnoea and death 12 days after admission. Post mortem: Empyema right base, less marked at left base; extensive pleurisy in front; pericardium full of thick green pus, adherent in places; purulent bronchitis; lungs compressed; no broncho-pneumonia.

CONCLUSIONS.

1. The high mortality of empyema in the first two years of life is due to the specific character of acute primary pneumonia of infancy.
2. Meta-pneumonic cases almost always recover. Syn-pneumonic cases almost always die.
3. All meta-pneumonic cases should be dealt with by excision of rib as speedily as possible.
4. Syn-pneumonic cases should not be dealt with by excision of rib until after the termination of the pneumonic process. Some form of paracentesis should be practised as a temporary measure.
5. In syn-pneumonic cases death occurs from the original pneumonia and from metastasis of infection to other parts rather than from the empyema.

References.—1. Holt: Diseases of Infancy and Childhood, eighth edition, 1922, p. 545. 2. Cameron: The Relative Value of Immediate and Delayed Laparotomy in Pneumococcal Peritonitis, Proc. Roy. Soc. Med., 1912, vol. v. (Clinical Section), pp. 123-133. 3. Holt: Loc. cit., p. 502. 4. Goodhart and Still: Diseases of Children, eleventh edition, 1921, p. 458.

DONATIONS AND BEQUESTS.—In response to the special appeal for £15,000 in aid of Ancoats Hospital, Manchester, the donations received up to date amount to £4323. During the past year the Royal Schools for the Deaf, at Old Trafford, Manchester, have received the following legacies: £500 from the late Sir James E. Jones, £200 from the late Miss Elizabeth Hilton, and £1000 from the late Miss Violet Robinson.—The late Mr. John Wall Fothergill, of Southport, bequeathed £10,000 to the National Institute for the Blind, London.—At the annual meeting of the subscribers to the Leigh Infirmary, Lancashire, it was reported that during the year about £6000 had been contributed to its funds and that practically all the collieries and weaving sheds were contributing.—The Manchester Royal Infirmary has received a legacy of £500 from the late Mrs. Ermiah Ingham.

CONGENITAL DEFECT OF THE PECTORALIS MUSCLES.

BY E. B. MORLEY, M.B., B.S. LOND.

CONGENITAL defect of the pectoral muscles, though described in most text-books, is seldom seen. Schlesinger saw five cases in 54,000 patients in Vienna. There are about 220 cases recorded in the literature. R. Bing gives the bibliography up to 1902 and E. Clarke from 1902-1911. Appended to this paper are references to 18 cases recorded since then.

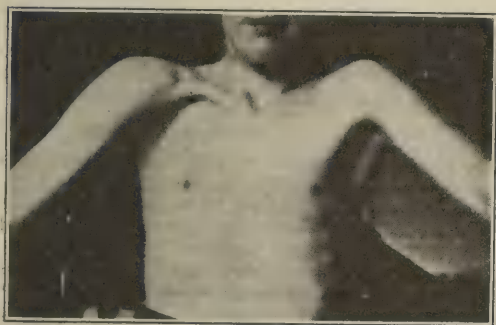
The extent of the deficiency is variable. Complete absence of pectoralis major and minor is rare, the clavicular portion of the pectoralis major being nearly always present to some extent. A case (post mortem) showing complete absence of both muscles—on the left side—without even fascial bands to represent them, was described in THE LANCET by A. G. Severn during 1921.¹⁸ Only one case has been noted where the defect was bilateral. Absence of the pectoralis minor unassociated with defect of the pectoralis major does not occur; the defect is usually greater below than above; and this is important when the embryological aspect is considered. The influence of heredity is uncertain, for though Clarke quotes only one instance (where a father and two sons were affected) it is not uncommon to find—as in two of my cases—some members of the family with congenital defects of other structures.

Possible Causes of Pectoral Defect.

1. In some animals the pectoral group of muscles is complex. Thus, Lander describes six pectoral muscles in *Trichosurus vulpecula*. So also in man, definite grouping of fibres of pectoral muscles does occur, and it has been suggested that congenital deficiencies may be explained along the lines of phylogenetic retrogression.

2. Pressure of forearm or of knee of foetus in utero causing atrophy and fibrosis of developing muscle plates—a sort of ischæmic contraction. In favour of

FIG. 1.



CASE 1.—Whole of right pectoralis major and minor absent except for a thin slip.

his is the fact that portions of the muscles have been found represented by a fibrous cord extending from the chest to the humerus.

3. Absence of external and internal anterior thoracic nerves. This rather begs the question. One would not be likely to find a nerve present without its corresponding muscle to innervate.

4. The explanation that falls in with most of the facts is that of Lewis. He points out that in the 1 mm. embryo, the primitive pectoral premuscle mass is mostly above the level of the first rib. In the 1 mm. embryo it extends lower, but has no attachment to ribs or to humerus. It is still undifferentiated into its component parts, except that the pectoralis minor is indicated by a bulge towards the coracoid. In the 16 mm. embryo the clavicular portion is split off, and then the remainder divides into the sternal portion and the pectoralis minor.

Here, then, is a possible explanation of the fact that the clavicular portion is seldom absent; the pectoral anlage has been formed, but has not become differentiated. It also suggests a reason for the fact that the defect is always greatest towards the caudal end. The muscle mass has a cervical origin and has failed to migrate caudally to an extent sufficient for attachment to ribs and sternum to take place.

Eight Actual Cases.

Since 1913 I have come across eight cases of pectoral defect. The first case was seen in a private

FIG. 2.



CASE 7.—Clavicular portion of pectoralis major, and part of sternal portion attached to manubrium and second rib, well developed. Remainder of pectoralis major and whole of pectoralis minor absent.

patient, and the remainder in recruits for the army. The photographs of Cases 1, 7, and 8 indicate three different degrees of defect.

CASE 1.—Male, aged 13, seen in 1913. (See Fig. 1.) Defect discovered in routine examination for a cough. A healthy boy; no abnormality noticed by his mother. Except for a thin slip from the clavicle, the whole of the right pectoralis major and minor are absent. This produces an enormous cavern in the right axilla, and is most noticeable when the arms are raised and pressed firmly towards each other on some fixed object. The nipple is neither absent nor displaced upwards, as in some of the cases described in the literature. The boy's father has a supernumerary toe on the right foot, and a niece of the father had supernumerary right and left thumbs.

CASE 2.—Male, aged 34, seen Feb. 9th, 1917. Collier, recruit. Except for a small clavicular portion, the remainder of the pectoralis major and the whole of the pectoralis minor are absent on the right side. Nipple normal in size and position. The recruit had never noticed any disability, but said he had been rejected previously for the army, because (he was told) he had a "fibrous" lung. On examination no signs were found in the chest. The man's sister had a cleft palate.

CASE 3.—Male aged 24. Seen Feb. 9th, 1917, the same day as Case 2, but no relationship could be traced. Collier, recruit. Clavicular portion of pectoralis major present. Sternal portion and pectoralis minor absent on the right side. Nipple normal in size and position. No brothers or sisters. Parents said to be normal.

CASE 4.—Male aged 31, seen May 14th, 1917. Potter, recruit. Except for the usual clavicular portion, pectoralis major and minor on left side absent. Nipple normal in size and position. No history of abnormalities in other members of family.

CASE 5.—Male, aged 32. Seen May 30th, 1917. Railway clerk, recruit. In this case the only portion missing was the lower half of the sternal portion of the pectoralis major below the third rib on the left side, and but for the fact that I had seen previous cases would certainly have escaped notice.

CASE 6.—Male, seen June 22nd, 1917. Recruit. Exactly the same as Case 5, except that the missing lower portion of pectoralis major is on the right side. Nipple present. No family history of deformities.

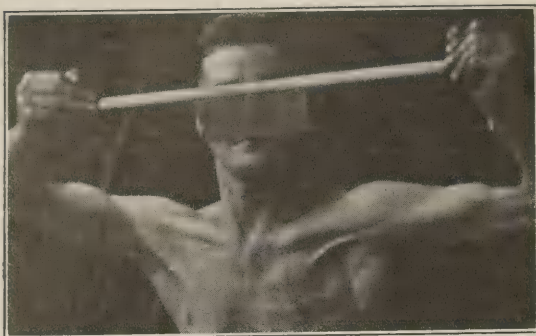
CASE 7.—Male, aged 19, seen Sept. 22nd, 1920. Recruit. (Fig. 2.) Defect on right side. Clavicular portion of pectoralis major, and that part of the sternal portion which is attached to manubrium and second rib, present and well developed. The remainder, and pectoralis minor, absent. Nipple normal in size and position. The recruit made inquiries, but could find no similar condition in other members of the family.

CASE 8.—Male, aged 20, seen December, 1921. Soldier. (Fig. 3.) Defect first noticed at age of 14 during an attack of pneumonia. On right side sternocostal fibres from second to third ribs present, but feebly developed. On left side, pars clavicularis is well developed, but, except for a small slip from the third rib, remainder of pectoralis major and whole of pectoralis minor absent. No alteration in size or position of nipple. No family history of deformities.

Summary.

Eight cases of defect of the pectoral muscles are described, all in healthy males, showing four different

FIG. 3.



CASE 8.—Sterno-costal fibres from second to third rib feebly developed; except for small slip from third rib, remainder of pectoralis major and whole of pectoralis minor absent.]

degrees of defect. In no case was the patient aware of the condition and no lack of muscular power could be discovered. In no case was the nipple absent or displaced. In all cases some representative of the pectoral anlage was present, even if only a small clavicular slip. In Case 8 there was some degree of bilateral defect; in the remainder, five were on the right, two on the left. In two cases totally different types of congenital abnormality were found in other members of the family.

The fact that five of the cases were seen in the short period of five months suggests that the condition is much commoner than imagined, and that the lesser degrees of defect are only likely to be noticed if other cases have already been seen.

In cases seen post mortem, it would be interesting to note the presence of compensatory hypertrophy in other muscles, any alteration in the bony structure of the shoulder girdle and changes in the disposition of coraco-humeral ligaments and fascial planes. Congenital defect of the pectoral muscles follows a definite line of distribution, greater below than above, and probably reproduces various stages of foetal development, as do the various degrees of cleft palate.

REFERENCES.

- Bing, R.: Virchow's Archives, clxx., 1902, 175. (Gives bibliography up to 1902.)
 Clarke, E.: Jour. Anat. and Physiol., London, 1915, 155. (Gives bibliography from 1902-1911.)
 Lander, K. F.: Jour. Anat., London, 1917-18, iii., 292.
 Lewis: Johns Hopkins Hosp. Bull., 1901, xii., No. 121, 172.
 Further Cases recorded since 1911.—1. Akhun, I. I.: Voyeremo. Med. Jour., St. Petersburg, 1914, ccxxxix., med-spec., 358.
 2. Amerling, K.: Casop. lek. cesk., Praha, 1911, 3. Burgerhout, H.: Nederl. Tydschr. v. Geneesk., Amsterdam, 1912, 1497.
 4. Carrau, A.: Pediatría espan., Madrid, 1917, vi., 247.
 5. Cockayne, P. A.: Proc. Roy. Soc. Med., London, 1918-19, xii., Sect. Dis. Ch., 59. 6. Dianderas, J. C.: Cron. med., Lima, 1918, xxv., 134. 7. Friedrich, W.: Zentralblat. f. chir. u. mech. Orthop., Berlin, 1914, viii., 169. 8. Gardiner: Jour. Amer. Med. Assoc., 1915, lxi., 508. 9. Grieg, D. M.: Edin. Med. Jour., 1912, viii., 248. 10. Ihijima, S.: Ztschr. f. Mil. Aerzte, Tokyo, 1912, No. 36, 89. 11. Kajava, Y.: Finska läk. sällsk. handl., Helsingfors, 1915, vii., 1421. 12. Laan, H. A.: Nederl. Tydschr. v. Geneesk., 1912, T., p. 61. 13. Leroy, M.: Bull. Soc. de Méd. du Nord, Lille, 1912, 74. 14. Tedeschi, C.: Archiv. f. Orthop., Wiesbaden, 1913-14, xiii., 276. 15. Teuchter, J. L.: Lancet Clinic, Cincinnati, 1915, cxiv., 22. 16. Weckbecker, H.: Ein Fall von congen. Brustmuskelddefekt, Bonn, 1911. Th. Wurm. 17. Jarratt, K. A.: Brit. Med. Jour., 1921, i., 369. 18. Severn, A. G. M.: THE LANCET, 1921, ii., 560.

Mill Hill, N.W.

THE EXPERIMENTAL PRODUCTION OF A FATAL NEPHRITIS

WITH A FILTER-PASSING VIRUS OF NERVOUS ORIGIN.

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THE question of the ætiology of many cases of nephritis in man remains obscure, and in view of the importance of the disease and the frequency with which conditions associated with urea retention lead to death, any observations which will help to elucidate the matter naturally claim one's attention. In this paper it is not proposed to consider nephritis caused by known animal and vegetable parasites or their toxins, poisons, &c.; the discussion will be confined to that occurring as a complication or sequelæ of filter-passing virus diseases, as well as with those cases of acute and chronic Bright's disease whose causal agent is unknown. By the intracerebral inoculation of a filter-passing virus obtained from nervous tissue we have been able to produce a fatal nephritis, uncomplicated by the presence of bacteria.

Nephritis following on an attack of scarlet fever is a variety of kidney inflammation which is of great interest, for there is the question as to whether the specific filter-passing virus or the accompanying streptococcus is the primary ætiological factor. Although the latter parasite may be seen and isolated from the throat, blood, kidneys, &c., of a large proportion of cases, the chief histological features of the nephritis are usually not those of the reaction against an ordinary bacterium, but rather against that of a filter-passing virus. In some cases the streptococcus cannot be recovered, and, on the other hand, streptococcal septicæmias very often produce no nephritis at all, although neither of these objections rules out the possibility of the streptococcus being the primary factor in the disease. The tissue reactions form an important guide in this, as in so many other conditions, where one is searching for the cause of an unknown morbid process.

Nephritis in Veterinary Pathology.

It seems that frequently insufficient consideration is given to this side of the question by investigators, and far too many parasites have been designated as the causal agent of diseases which, on the face of the histological findings, are extremely unlikely to play any more than a secondary part in the disease in question. Several instances might be mentioned in human pathology, but it is especially in the veterinary field that one meets with so many examples of injudicious and unconvincing publications where an ordinary vegetable parasite is given as the active agent when the clinical and histological features are obviously those of a filter-passing virus disease. In veterinary pathology nephritis is frequently recognised as a complication of diseases due to filter-passers—distemper of dogs, swine fever, foot-and-mouth disease, &c.; while in medical pathology it is associated with scarlet fever and more rarely with measles. Also, the condition known as trench nephritis is usually thought to be caused by a filter-passers. It is not, as a rule, considered that German measles, varicella, &c., as well as many other filter-passers diseases, are followed by renal inflammation: on the other hand, the ætiology of a large number of cases of acute and chronic Bright's disease remains obscure. Metchnikoff's theory of the absorption of intestinal toxins would appear to be a highly feasible explanation, although it is probable that filter-passing viruses may play a much more important part than is generally recognised. Our experiments on

encephalo-myelitis and nephritis of rabbits would appear to be of some interest in this connexion.

Observations in Animals.

The earliest observations of lesions of encephalitis in normal rabbits are, as far as we are aware, those of Bull.¹ This author was experimenting with injections of streptococci, and found in his animals a mononucleosis of the central nervous system. Similar lesions were found in one of three rabbits which had succumbed to a bacillary septicæmia. Later, Oliver² described a similar condition in her rabbits which had been subjected to repeated large doses of arsphenamin, over a period of ten days; such animals dying, as a rule, from the effects of this procedure. However, experimental rabbits which died in a few days following the injection of the same drug showed similar lesions of the central nervous system, and thus led her to examine the supposedly normal animals of her stock as well as a number obtained from the public markets. In both instances about 20 per cent. of the animals showed lesions of encephalitis.

A Spontaneous Outbreak among Stock.

We had not encountered the disease previous to the winter of 1921-22, when an outbreak occurred spontaneously in our stock. During the course of some experiments on lymphadenoma and allied diseases several of our animals succumbed in a rather unexpected manner, and post-mortem examinations failed to reveal any obvious lesions in the thoracic or abdominal viscera. Histologically, however, lesions characteristic of those associated with the presence of a filter-passing virus were demonstrable in the central nervous system and in several of the other organs.

At the time of the publication of our first communication on the disease,³ we were unaware of the observations made previously by Bull and Oliver, and there is no doubt that the disease prevailing in America is the same as that occurring in this country. It is curious that while in our stock, in the original epidemic, death occurred in practically every case in which symptoms were evident, the animals of these authors were mostly in good health until a fatal experimental dose of arsphenamin or streptococci was given; and subsequent examination of the central nervous system revealed the unexpected round-celled infiltration of an encephalitis. We are unable to gather from Oliver's paper exactly how her animals reacted to the disease clinically; she mentions in one place that they "rarely die," but it appears that, generally speaking, health was normal previous to the utilisation of the animals for experimental purposes.

Subsequent Observations: Absence of Nervous Symptoms and Many Recoveries.

Although in our original epidemic symptoms of the disease indicated practically a fatal prognosis, subsequent observations have shown that many rabbits may have lesions of the central nervous system without any apparent disturbance of their health. Some may show slight symptoms, and others even a rather severe indisposition, and eventually make an apparently perfect recovery. Among our stock we can never be certain that an animal is not suffering from the latent disease which may at any time lead to a rapidly fatal termination. Outside these laboratories we have, up to the present, not met with the spontaneous disease, and the normal animals examined have had no histological changes in the central nervous system. It was very soon noted that the extent of the lesions of the central nervous system did not follow closely the severity of the symptoms. Among the first 16 fatal cases, on several occasions, only insignificant changes could be demonstrated, while in other animals a very intensive round-celled invasion was observed, extending the whole length of the central nervous system, although much more marked in the brain than in the cord. The cells were

scattered or agglomerated into foci, or surrounded the vessels in the typical manner. Chromatolysis and neuronophagy were also sometimes present, together with an invasion of the meninges. The cerebro-spinal fluid varied from normal to a well-marked mononucleosis, but cultures of the fluid, as also those of the blood, remained invariably sterile, with the exception of an occasional accidental contaminating colony.

In view of the absence of nervous symptoms, with often an extremely slight degree of microscopical evidence of disease of the nervous system, and that histological examination of the kidneys revealed considerable damage to the organs, together with less extensive changes in the liver and spleen, it was evident that possibly we were dealing frequently with cases of renal death and not with death of a nervous origin, although, undoubtedly, some of our cases had died from the changes in the nervous system. Thus, in our later animals, not only was a more careful microscopical examination of the kidneys and urine carried out, but biological tests of renal function on the blood and urine were performed whenever possible. The results obtained were most conclusive evidence of death occurring, in the majority of cases, with urea retention.

Ætiology of Spontaneous Nephritis of Rabbits.

Spontaneous nephritis of rabbits has long been recognised, and numerous workers have come across the disease while studying the experimental production of nephritis in this variety of animal. From the examinations made by Bell and Hurtzwell,⁴ and by the several authors they mention, it appears that among 400 animals, the kidneys of about 15 per cent. show evidence of renal disease. It is only recently that we have encountered the spontaneous nephritis, which has been usually accompanied by lesions of encephalitis. According to Bell and Hurtzwell, "we are not dealing . . . with a diffuse interstitial nephritis such as occurs in diphtheria and scarlet fever, but with discrete foci which cause atrophy of the entire tubule system by destroying its central portion." This describes very well the appearance of the kidneys of animals which remain more or less active and healthy, but in the case of death with urea retention it is not always a question of discrete foci, which, although present, may not dominate the picture. A glomerular nephritis is sometimes met with, but still more frequently it is the convoluted tubules which suffer most severely, and the lining cells of which may be so destroyed that only an occasional normal portion of this part of the tubule can be seen. It is unfortunate that in the publications on spontaneous nephritis of rabbits which we have perused we have found no evidence of the examination of the central nervous system made in conjunction with those of the kidney, and Oliver does not mention specifically whether the kidneys were examined in her cases of spontaneous meningo-encephalitis.

Bell and Hurtzwell contend that in all probability the virulent staphylococcus which was isolated on two occasions from their cases of spontaneous nephritis was the causal agent of the disease, an opinion with which we cannot agree, although the said staphylococci were isolated in pure culture. It seems more probable that the staphylococcus was associated with a specific filter-passing virus, as a secondary infection, examples of such an association being frequently found in diseases of man and animals. The fact of there being primarily a mononuclear invasion and not a polynuclear one should make one hesitate to assign an ordinary bacterium as causal agent of the disease, although, of course, some special bacteria, such as members of the acid-fast group and a few other related forms, do excite the migration of lymphocytes. An invasion of lymphocytes under the sole stimulus of an ordinary bacterium would appear to occur with a frequency about equal to that of a polynuclear invasion excited by a filter-passing virus;

that is to say, at the most it is very exceptional, and probably really does not occur at all.

Urea Content of the Blood.

The estimation of the urea content of the blood was carried out by means of a micro-method adapted to the small amounts of blood available, the technique being, briefly, as follows: 0.2 c.cm. of blood was incubated at 50° C., with 1 c.cm. of water, and 0.2 c.cm. of a 10 per cent. solution of urease, ammonia developed by the enzyme action being fixed by the acid phosphate present in the urease solution. The proteins were precipitated by adding 0.3 c.cm. of a 10 per cent. solution of sodium tungstate and 0.3 c.cm. of 2/3 normal sulphuric acid, the solution diluted to 8 c.cm. and filtered. 5 c.cm. of this filtrate (representing 0.125 c.cm. of blood), diluted with 5 c.cm. of water, were treated with 2 c.cm. of Nessler reagent, and the resulting brown colour compared with that obtained by nesslerising a standard solution of ammonia; the standard ammonia solution being of such a strength that 1 c.cm. was equivalent to 0.0001 g. of urea. The comparisons were made in a Kolber colorimeter. The method has been previously tested upon a large number of human blood specimens and control urea solutions. The results of these tests, which are the subject of another paper,⁶ have convinced us of the accuracy and usefulness of the method.

Single Causative Agent of Spontaneous Forms of Nephritis and Encephalomyelitis.

As mentioned in one of our previous communications,⁶ we arrived at the conclusion that the spontaneous nephritis and the spontaneous encephalomyelitis of rabbits were probably caused by a single virus, and experiments which we have carried out in this direction certainly support our view. The most conclusive experiments with reference to this question were performed on animals at the Brown Institution. Neither of the conditions had been observed among the stock of this institution, but just prior to the commencement of our experiment we took the precaution to make a careful examination of six normal animals, selected haphazard, and we were unable to find any histological changes in the organs.

Two litters of four young and their mother were taken for the experiment and removed to another stock room, situated in an entirely separate building. The four young of one litter were injected intracerebrally on July 12th, 1922, with a small quantity of an emulsion of spinal cord, preserved in 50 per cent. glycerine in saline, in cold storage, for six months, of a rabbit which had died from spontaneous encephalomyelitis. The mother was left with her young and served as a control, while the second litter of four young and their mother were placed in an adjacent cage, a few cubic centimetres of the glycerinated emulsion being sprayed on the bedding in the bottom of the cage. For several months all the animals seemed quite healthy, but it was noticeable that those which had received an intracerebral injection did not grow into such robust animals as those of the second litter. It will be unnecessary to go into detail as regards the subsequent history of these animals. It will suffice to say that the four inoculated animals died at intervals varying from three to four and a half months after injection, and their mother died five months after this date. The other litter and their mother are still living and apparently in perfect health. The duration of acute illness varied from one to two days. The animals at death were thin, and a certain amount of coccidial disease of the liver was present in three of them. But this, evidently, was not the cause of the death, as there was an absence of diarrhoea, purulent secretion from the eyes, &c., which one usually associates with death from this variety of animal parasite; and in the mother and remaining young there was no trace of coccidial disease. As a matter of fact, coccidiosis has been endemic among the stock of the

Brown Institution for years, but the central nervous system and kidneys of the animals which died never showed changes comparable to those with which we are at present concerned here.

Histological Findings.

The histological findings in the animals now under consideration were very illuminating; the typical lesions of encephalitis and a slight degree of meningitis were found, but the most interesting feature was the presence of nephritis of varying intensity. The blood-urea concentration was very high—viz., 0.4 to 0.53 per cent.—with the urine, in those cases where obtainable, showing a correspondingly low figure. The normal figure of rabbits, guinea-pigs, cats, and dogs we have found to vary from 0.025 to 0.05 per cent., being about the same as that found in man. Thus, there appears to be no doubt that by the inoculation of a filter-passing virus into the brain of these four animals one produced a fatal inflammation of the kidneys, and death with urea retention. True, it may be objected that our inoculum consisted of a brain emulsion and not of a filtrate; on the other hand, cultures of the blood, cerebro-spinal fluid, &c., have remained uniformly sterile, and the histological findings are characteristic of those found associated with the presence of a filter-passing virus. Needless to say, experiments with Berkefeld filtrates, similar to those under discussion, are being undertaken, so as to exclude, as far as possible, the action of an ordinary vegetable parasite. We say as far as possible, because numerous experiments with porcelain filters have shown us how, under certain circumstances, bacteria may pass such filters, even those of a much finer texture than the Berkefeld. Experiments with the heated virus will, in addition, be performed.

Established Presence of Filter-passing Virus.

We consider, then, that there is no reasonable room for doubt that the animals in question died from the presence of a filter-passing virus in the kidneys, the virus being the sole agent in the production of the nephritis, and unassociated with any ordinary vegetable parasite. Our results are in accordance with those of Condrea,⁷ who has reported the production of an experimental nephritis in rabbits as the result of the intracerebral injection of vaccinia virus, and we are under the impression that nephritis has also been produced in rabbits experimentally with encephalitis-lethargica material. One assumes that these investigators took the precaution to exclude the presence of spontaneous nephritis among their stock. It will be noted that the uninoculated mother succumbed soon after the death of her four inoculated young—a clear case of cage infection. On the other hand, the second litter of the mother and four young remain healthy, although material which was proved by injection to contain virus was scattered over the bedding. This is an example of what one finds frequently when experimenting with related viruses, such as that of distemper of dogs, &c.—viz., cage infection from animal to animal, but not from fomites to animal—when one is using the homologous virus. The case is different with a heterologous virus; thus while it is comparatively easy to infect, by experimental inoculation, some varieties of animals with the virus of human encephalitis-lethargica or infantile paralysis, it is rarely that one meets with cage infection.

Four rabbits which had been extensively inoculated on the skin of the back with vaccinia virus, and after showing a typical eruption, made, apparently, a complete recovery, were given to us by the kindness of Dr. M. H. Gordon. Of these animals, one was very ill just before being anaesthetised, the remaining three being quite healthy. The blood-urea concentration of the animal which was ill was 0.6 per cent., the highest figure we have obtained in man or animal; that of the three other animals was normal in amount. Presumably, this animal suffered from spontaneous nephritis, for it had only been inoculated with vaccine ten days prior to death, and it is unlikely that the

latter virus would have destroyed the kidneys so rapidly.

It is only occasionally that we have been able to detect a rising blood urea figure in animals some time prior to their death. It is usual for it to keep normal even when the animals are getting thin, and are obviously ill, and the suddenness with which death occurs is often most unexpected. A complete examination of the urine has not been possible, as we have no special cages for the collection of the urine. As far as we have been able to investigate isolated specimens, the urea concentration of the urine has been found to be low when the blood urea figure was high, and albumin is usually present. Other pathological and normal chemical constituents of the urine have not been estimated. The urine is usually turbid with granular casts and renal epithelial cells, but although an abundance of well-formed tubule cells indicates an acute inflammation, we have on no occasion observed the presence of red blood cells. It is to be regretted that sugar estimations of the blood and urine were not made, for in several cases the symptoms, taken as a whole, were very suggestive of glycosuria.

Clinical Symptoms of the Spontaneous Disease.

The clinical features of the spontaneous disease are not very striking; indeed, on occasions, the course is so rapid that from the onset of symptoms to death there is a lapse of time of less than 24 hours. The onset is usually insidious, and the first indication of any trouble is, in most cases, wasting of the animal. The temperature is, at times, markedly subnormal; 97.4° and 97.7° F. in two cases; among a very large number of temperature observations on this variety of animal, normal and diseased, we have never recorded such low figures unless death was imminent. A frequent feature is the patchy shedding of the hair, which may occur in several situations, the most usual being at the back of the neck and along the spines as far back as the mid-lumbar region. Discharge from the eyes, without much inflammation, may also occur, but in rabbits this condition is met with in several other diseases, and is thus not of much value from a diagnostic point of view. It is, however, as a rule, unaccompanied by diarrhoea. Respiration is normal, and there is a complete absence of any analytic phenomena. There may be considerable nœmia, with a high colour-index and the presence of numerous erythroblasts, a condition of the blood which we have found associated with distemper of dogs. As the disease progresses, emaciation becomes profound, although the appetite seems to be fairly good; and for a considerable time the animal keeps bright and active in spite of general muscular weakness. In no case have we observed œdema of the subcutaneous tissues. Convulsions may occur as a terminal phenomenon, and in two cases the tongue has been severely bitten, presumably during a convulsion. During the whole course of the disease there remains nothing to indicate implication of the nervous system. Death takes place during a convulsion, which may or may not have been preceded by a short period of coma, or it may take place in coma. The length of time for which an animal may survive after the first symptoms have been noted has varied from 15 hours to several days.

It appears that complete recovery may occasionally take place after the advent of symptoms, favourable signs being a rise of temperature, an increase in weight, and renewal of hair. With the experimental disease recovery is more frequent, and a good number of our animals have shown no evidence at all of any effect of the inoculation. The majority of the animals which harbour the virus naturally keep in apparently perfect health, but once symptoms occur in such animals, fatal termination, in our experience, almost invariably resulted.

Post-Mortem Observations.

Among our rabbits we have had in all 36 deaths in which no evident cause of death was observed on

post-mortem examination. Of these 36 animals, the central nervous system was examined histologically on 34 occasions, and the kidneys on 22 occasions. Lesions were found in the former situation 28 times, and in the latter situation 22 times. The cerebro-spinal fluid was examined in 26 cases, a mononucleosis being found on 11 occasions. The urea concentration of the blood was tested in 19 cases, and found to range from 0.2 per cent. to 0.6 per cent. on 16 occasions. In no case has there been both a mononucleosis of the cerebro-spinal fluid, and a high blood urea; and it is probable that in our early cases, when the cerebro-spinal fluid was normal with but slight lesions in the nervous system, and in which the blood was not examined for urea, death was really due to the renal lesions, with urea retention. We consider, therefore, that among our animals death of a renal origin was really over twice as frequent as death of a nervous origin. Besides the above-mentioned 36 animals, we have killed 20 controls, all of which were apparently in good health although several of them had been inoculated with different filter-passing viruses. Lesions were found in the central nervous system and kidneys on several occasions, but in no case was there a mononucleosis of the cerebro-spinal fluid, nor was there any abnormality in the urea concentration of the blood or urine.

The table given below shows our results in fractions, the numerator denoting the number of times in which positive results were obtained, and the denominator the number of examinations made. A positive result in the case of the central nervous system implies a round-celled infiltration, in the cerebro-spinal fluid a similar infiltration, in the case of the kidneys the presence of a well-marked nephritis, and in the blood a urea concentration of at least 0.2 to 0.6 per cent.

Number of—	C.N.S.	C.S.F.	Kidneys.	Blood urea.
<i>Fatal Cases (36).</i>				
Positives ..	28	11	22	16
Examinations ..	34	16	22	19
<i>Controls (20).</i>				
Positives ..	7	0	5	0
Examinations ..	19	16	16	9
<i>Totals (56).</i>				
Positives ..	35	11	27	16
Examinations ..	53	40	38	28

Variations of Lipase Content of Blood.

In view of the nature of the virus concerned in this disease of rabbits it was thought probable that variations in the lipase content of the blood would be found to exist in different stages of the disease, and this idea was not difficult to confirm by experiment. Variations are found in diseases due to acid-fast bacilli, and would presumably be also evident in those caused by animal parasites, but one would expect to find the most marked changes in the case of filter-passing virus diseases owing to the process being, as a rule, more acute, and the degree of immunity in recovered cases being very high. The associated mononuclear activity in the above-mentioned group of diseases must evidently be closely related to the amount of lipase present, and it would seem that the secretion of lipase is possibly in the nature of an immune reaction.

Our first procedure in this direction was conducted with a view to the ascertaining of the lipase content of the blood in normal man and animals. The majority of the bloods tested came from man, rabbits, and guinea-pigs, but we were also able to procure several post-mortem specimens from cats and dogs which had been destroyed on account of old age, mange, &c. The normal figures we obtained were as follows; that of some being, of course, well known previously, and our results confirming those of other workers. Over 200 of these tests have been performed.

The figures relate to the amount of decinormal soda solution, measured in cubic centimetres, required to

neutralise the acidity produced by the fermentative action of the lipase in 1 c.cm. of serum on 0.26 c.cm. of ethyl butyrate, after incubation at 37° C. for 24 hours; thymol blue being used as indicator.

Human sera	about 0.25
Rabbits' sera	" 0.37
Guinea-pigs' sera	" 1.20
Dogs' sera	" 0.30
Cats' sera	" 0.40

The remarkably high figure of the guinea-pig is interesting, and certain authors associate the high lipase with the high complement titre of the serum in this animal. We were unable to confirm this opinion, and found no strict parallel between the amount of lipase and the amount of complement present. Also, dialysing and heating experiments did not act in the same manner on the two substances, although we found that heated lipase was partially re-activated by the addition of a small quantity of complement, due allowance being made for the fresh lipase added with the complement. Post-mortem blood we have found to be unreliable, unless taken soon after death or unless the serum can be obtained where it has separated out free from the corpuscles. A certain amount of hæmoglobin does not interfere with the test except for the fact that it renders the reading of the end-point rather more difficult than when clear. Sera can be kept for months without a diminution in the lipase titre, and, as a matter of fact, it appears to be rather raised than lowered, especially with rabbit's serum.

During the acute stages of a filter-passer disease we anticipated a fall in the lipase content of the blood and a substantial rise later on, in the event of the patient making complete recovery. We have not been able to demonstrate with certainty any appreciable fall during the course of such diseases, but the rise in rabbits, when immunity has developed, was marked. A rise of more than double the normal figure has been found in several rabbits which had recovered from severe symptoms of encephalo-myelitis, and in four rabbits 10 to 14 days after inoculation on the skin with vaccinia virus. We have come to no conclusion as regards the length of time for which the lipase titre remains elevated, but probably it is not comparable to that of the immunity. So far, tests on the post-mortem blood of several dogs suffering during life from distemper have yielded nothing of note, but samples of blood from dogs which had recently recovered from the disease have, unfortunately, not been available.

Other Conditions Probably Caused by a Filter-Passing Virus.

For some time we have been carrying out experiments on lymphadenoma and allied diseases of man, and the more we studied this group of diseases the more did it appear to us possible that a filter-passing virus might be the primary aetiological factor. The reasons which led us to this conclusion cannot be discussed here, although it may be mentioned that in addition to the experimental anæmias which we have produced by the injection of a filter-passing virus, such diseases as leukæmia of fowls,⁸ pernicious anæmia of horses,⁹ &c., are known to be caused by this category of virus. As was expected, we found in lymphadenoma, myelocytic and lymphatic leukæmias, and pernicious anæmia an undoubted lowering in the lipase content of the blood. In a case of lymphadenoma the serum was once completely devoid of lipase, but the titre in this group of diseases usually ranged from about 0.1 to 0.15. Glycerinated extracts of liver, spleen, and lymphatic glands, obtained post mortem from blood disease cases, were also compared with extracts of normal organs; the results have not proved to be of much interest, although, up to the present, only a small number of tests have been performed. We were not surprised to find that the glycerine extracts of liver gave a high figure—viz., from 2 to 3; extracts of spleen and lymphatic glands being, relatively, poor in lipase. The glycerine extracts remain unaltered for a great length of time if stored in the cold.

Summary.

1. Spontaneous encephalo-myelitis and spontaneous nephritis of rabbits are caused by a single virus; almost certainly a filter-passer.
2. Death in these cases may be of either nervous or renal origin, although usually of renal origin.
3. In the former case nervous lesions predominate in the cerebral cortex and the mesencephalon, and there is usually a demonstrable mononucleosis of the cerebro-spinal fluid. There are no symptoms indicating disease of the nervous system.
4. In the latter case renal lesions predominate, but although there is an abundant desquamation of tubule cells, and passing of casts, hæmorrhage is absent. The blood-urea concentration is very high, while that of the urine is correspondingly low. Albumin is present in the urine. A remarkable feature is that there is no oedema of the subcutaneous tissues. The profound wasting in some cases suggests the possibility of a glycosuria, but tests for sugar were, unfortunately, omitted.
5. With the advent of symptoms, death in the spontaneous disease is almost invariably the rule; in the experimentally produced disease recovery is not infrequent.
6. Natural or cage infection is frequent, especially among young animals. Artificial inoculation often fails to lead to any symptoms, due possibly to a previous mild attack having produced a certain degree of immunity.

General Conclusions.

1. A fatal nephritis may result from the action of a filter-passing virus in the absence of any other variety of parasite.
2. Such a virus may cause death with urea retention, although the virus was obtained from diseased nervous tissue, and although the portal of entry was by the central nervous system.
3. Cage infection from animal to animal when the disease concerned is that from which the animal naturally suffers is frequent, but this is not so in the case of fomites to animal, nor is it so when a heterologous virus is used, although the animal may be susceptible to artificial inoculation of such a heterologous virus.
4. When an immunity to a filter-passer disease has become established the lipase content of the blood may be considerably increased; in many other diseases which excite a mononuclear activity, including blood diseases of doubtful aetiology, there is a lowering of the lipase content of the blood during the active stage of the disease.
5. Glycerine extracts of normal liver contain about ten times the quantity of lipase as compared with that of the blood serum or that of glycerine extracts of spleen or lymphatic glands.

References.

1. Bull. Jour. Exper. Med., 1917, xxv., 557.
2. Oliver: Jour. Infect. Diseases, 1922, xxx., 91.
3. Twort: Vet. Jour., 1922, lxxviii., 194.
4. Bell and Hurlzwell: Jour. Infect. Diseases, June, 1919, p. 628.
5. Archer: Researches in course of publication.
6. Twort and Archer: Vet. Jour., October, 1922.
7. Condrea: Comp. Rend. Soc. de Biol., 1922, lxxxvi., 15.
8. Ellermann: Hønsleukosen, Kobenhavns Universitet, September, 1920.
9. Carré et Vallée: Revue générale, 1906, viii., 593; 1907, ix., 113.

MEMORIAL TO LIEUT.-COLONEL EDWARD MANSEL-SYMPSON, M.D.—On May 20th, at a special service at St. Mary Magdalene's Church, Lincoln, two stained-glass windows, in memory of Edward Mansel-Sympson, were unveiled. The glass in the western window has been designed in allusion to Colonel Mansel-Sympson's professional career. The left-hand light embodies the figure of St. Luke, with pen and book, and the right-hand one the figure of St. Bartholomew, holding a knife, the instrument of his martyrdom. In a small pane above the lights is the staff of Æsculapius. The eastern window commemorates his antiquarian and literary interests.

Clinical and Laboratory Notes.

A CASE OF CEREBRAL ABSCESS IN A CHILD.

BY J. PORTER PARKINSON, M.D., F.R.C.P. LOND.,
SENIOR PHYSICIAN AT THE QUEEN'S HOSPITAL FOR
CHILDREN, LONDON, E.;

AND

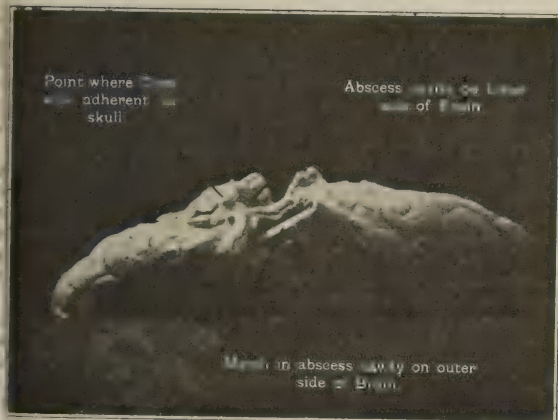
L. R. BROSTER, M.Ch. Oxf., F.R.C.S. Eng.,
ASSISTANT SURGEON AT THE QUEEN'S HOSPITAL FOR CHILDREN.

The following case is worthy of record for reasons given below:—

A girl, aged 4 years, was admitted under the care of one of us (J. P. P.) to the Queen's Hospital for Children on Feb. 24th, 1922. She was the last child of a healthy family of seven. The mother was healthy, but the father has paralysis of the legs and is losing his sight.

History.—The patient had measles 18 months previously, was stated to have had broncho-pneumonia 12 times, and had been ill since the last attack four months before. A month previous to admission she had a fit, followed by a second a few days later; a third occurred two days before admission and one on the day of admission. In these fits the left arm began with clonic contractions, then the leg and head twitched; this lasted about half an hour during which time consciousness was retained. After the fit the child complained of headache and said the left arm was weak. The nutrition of the muscles was normal, as also were the reflexes, except for an extensor plantar reflex on the left side. Bronchitic sounds were heard over both lungs, being much more numerous over the right lung. The heart and abdominal viscera appeared normal. There was no fever except for a slight rise early in March. The Wassermann reaction was negative.

Course of Case.—During the two months she was in hospital the patient had three more fits; on April 5th she was sent



Photograph of the child's brain, showing cavities of cerebral abscesses.

to the seaside branch hospital at Bexhill, being sent back on June 21st. Then a tender, fluctuating swelling was found in the right parietal bone, about half the size of a walnut. The fits recurred more frequently, and were Jacksonian in type, always commencing in the right arm; gait was unsteady and left leg weaker than right; knee-jerks could not be obtained, and abdominal reflexes were absent. Pupils were dilated and equal, and reacted to light and accommodation. There was well-marked optic neuritis. Lumbar puncture gave a clear fluid under slight pressure, normal on chemical and microscopic examination. There were occasional attacks of vomiting and complaints of headache. The lump on the head was aspirated, and a greenish pus evacuated, containing *Staphylococcus aureus*.

Operation.—On July 12th the skull was trephined. A large crescentic flap was turned down from the right frontoparietal bone; the top of its curve reached the mid-line of the skull, where there was a small abscess which had previously been opened. On exploring the bone a minute sinus, lying about one inch to the right of the mid-line over the Rolandic sulcus, tracked down through the bone. A half-inch diphtherine was applied behind this, and an oval area of normal

bone $1\frac{1}{2}$ by 3 in. around the sinus was removed; the dura bulged strongly through the opening, and pulsation was barely perceptible. When the dura was opened the convolutions were found to be flattened and oedematous, but revealed no sign of inflammation. A small nick was then made in the dura where it had been adherent to the bone, and immediately a strong stream of greenish pus, about 3 oz., gushed out under considerable tension. The brain shrank like a deflated bag, and pulsation at once returned. A small drain was inserted and the wound closed, but marked collapse and respiratory distress followed and the child died a few hours afterwards.

Post Mortem.—There was a large abscess cavity in the pre- and post-Rolandic area of the right vertex, measuring 2 by 3 by $1\frac{1}{4}$ in. and half an inch below the cortex. Adjoining this on the mesial aspect of the brain was a smaller abscess cavity (see illustration). The walls were smooth and continuous with the brain substance. The rest of the brain was normal, except for a slight degree of internal hydrocephalus and some softening below the larger abscess. The lungs showed fibrosis of both apices, with doubtful signs of healed tubercle. The lungs were emphysematous, and there was pus in the larger and smaller bronchioles, but no bronchiectasis. *Staphylococcus aureus* was found in the pus from the brain and also from the bronchioles.

Remarks.

Abscess of the brain is exceedingly uncommon in so young a child; it is rarely seen under the age of 10 years. It is also uncommon for cerebral abscess to be secondary to lung disease, in spite of the fact that this cause is mentioned in all the text-books, and a priori one would expect to meet with it more frequently. Again, for a cerebral abscess to erode through the bone of the skull and form a tumour beneath the scalp is in our opinion an almost unique experience. It may be thought that this would not have occurred if the diagnosis had been made earlier, but at that time the only signs of cerebral disturbance were the Jacksonian fits. There was no optic neuritis, no vomiting, no headache except after a fit, and the child seemed quite well except for the signs of bronchitis. When the tumour first appeared it resembled a subperiosteal gumma, the edges being hard, while the centre fluctuated; this idea of a gumma was supported by the fact that the father was suffering from a syphilitic nerve lesion. The Wassermann reaction in the blood was negative, and the evacuated pus contained staphylococci. It was also peculiar that the abscess tracked directly through the bone to the exterior, without leaving any pus in the extradural space.

A CASE OF HYDATID DISEASE.

BY HAROLD C. LEES, M.B., B.S. LOND.,

HON. SURGEON, BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY;

AND

JEFFREY RAMSAY, O.B.E., M.D. LOND.,

HON. ASSISTANT PHYSICIAN AND PATHOLOGIST, BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.

The following case is of interest owing to its unusual character.

The patient, a male, aged 50, formerly a collier, afterwards a weaver, and latterly a coal-heaver, was admitted to the Royal Infirmary, Blackburn, on Feb. 16th, 1923, for purposes of investigation, on account of having passed in the urine "a thick fleshy substance with a thin covering."

History of Present Condition.—Had no urinary symptoms previous to Feb. 10th, 1923. On this date he noticed slight pain and difficulty in micturating, and he passed the substance which is described in his own words above. He took it to his doctor, who thought that the substance in question might be an hydatid cyst. The patient states that he has lost weight considerably during the last few weeks, but can give no accurate figures.

Past History.—His left eye was destroyed by an accident in 1915. In July, 1922, he had an attack of pain in the lumbar region, probably a fibrositis, which lasted for three weeks. On Jan. 29th, 1923, he suffered from epigastric pain and constipation, which lasted for four days. With these exceptions he has had no illness or accident. Has never kept dogs or lived in a house in which they were kept. States that he has always been specially fond of watercress and has eaten largely of it since his boyhood.

Condition on Admission.—A moderately healthy-looking man of medium height and weight. Tongue coated. He is deaf in both ears and has a double set of artificial teeth. No abnormality found in heart or lungs. Systolic blood pressure 130, diastolic 80. Pupil reactions and eye movements in remaining eye normal, and knee-jerk present. On inspection, abdomen somewhat pendulous and distended, and lacks free movement on respiration. On palpation considerable gurgling, but no evidence of free fluid or of enlargement of liver or spleen. No abnormality can be discovered on bimanual examination of the kidneys. Percussion note over abdomen slightly tympanitic in character.

Examination of the blood shows the following: Haemoglobin, 85 per cent.; reds, 4,680,000; colour index, 0.9; no nucleated reds seen, no stippling; no megalocytes, microcytes, or poikilocytes.

White cells 12,000. Percentages: polymorphonuclears, 90; eosinophils, 3; small mononuclears, 4; large mononuclears, 3; myelocytes, 0; transitional forms, 0.

Urine: Specific gravity 1014; reaction acid; no albumin; no sugar. An occasional granular cast was seen.

Urea-elimination test: before urea, 2.5 per cent.; first hour, 2.5 per cent.; second hour, 3.2 per cent.

Examination of the substance passed in the urine on Feb. 10th showed a thin-walled collapsed cyst of about the size of a walnut, and three fragments of a cyst or cysts, the latter slightly blood-stained. Typical hooklets were found on microscopical examination.

Subsequent History.—On Feb. 18th, two days after admission to hospital, one cyst of the size of a walnut, three smaller complete cysts, and several fragments were passed in the urine, and hooklets were again found. On the 27th a cystoscopic examination was carried out, and no abnormality was discovered. This finding is not conclusive, since a thin-walled and freely movable cyst might evade the observation of the cystoscopist.

The passing of hydatid cysts per urethram is a rare occurrence. Osler records two cases out of a series of 241 cases of hydatid disease. In the present case it seems probable that the disease is localised in the kidney, and it is not proposed to adopt any active treatment unless other symptoms and signs appear.

A CASE OF COMPLETE INVERSION OF THE UTERUS OCCURRING IMMEDIATELY AFTER LABOUR.

BY H. COHEN, M.R.C.S. ENG.

THE following case presents points of interest.

The patient was a primigravida, aged 20, with half an inch shortening of the diagonal conjugate. Labour commenced at 10 P.M. on Dec. 19th, 1922. At 5.30 next morning, when she was first seen, the pains were regular and moderately strong, the os three-quarters dilated, the cervix dilatable, and the membranes unruptured, the presentation being L.O.P. After an hour the membranes were ruptured, but at 7.15 A.M., as the pains were becoming perceptibly weaker and as the head was not rotating, I sent for my colleague, Dr. B. J. B. Devine, who administered chloroform. The head was rotated, forceps applied, and the patient delivered in Walcher's position without a tear. Half an hour later the placenta was felt bulging the lower uterine segment, and the uterus being well contracted, the placenta was readily expressed. It was at once evident that complete inversion had taken place. The membranes were adherent to the fundus and were detached. Meanwhile the patient was still under the influence of the anæsthetic which was continued. A hot sterile cloth was applied to the exposed endometrium. There was practically no hæmorrhage, and after an interval, the patient's condition being good, the inversion was slowly reduced. Pituitrin (1 c.cm.) was injected and finally a hot intra-uterine douche given.

The uterus was kept under control for two hours, and very little bleeding occurred, though collapse of moderate degree was present. Pulse 120, but regular and of fair volume. During the following week the patient was kept under careful observation, rectal saline being given twice daily. There was a reactionary rise of temperature (101° F.) during the first 24 hours, but subsequently during the whole course of the puerperium the temperature did not vary from the normal by more than 1.5°, finally settling down to normal on the fifteenth day. Otherwise recovery was uneventful, the patient being kept in the recumbent position for a month.

My thanks are due to my colleague, Dr. Devine, for his advice and assistance in the course of the case.
Nottingham.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

BIRTH PALSIES.

AT a meeting of this section on May 25th, with Dr. ERIC PRITCHARD, the President, in the chair, there was an exhibition of cases and discussion on birth palsies.

Klumpke's Paralysis.

Dr. C. WORSTER-DROUGHT showed a female child, now aged 2 years, who when first seen in July, 1921, presented a complete flaccid paralysis of the right arm; all the muscles, including the deltoid and pectoralis major, were then involved, but not the scapular muscles. She was a full-term first child, a breech presentation, and it was stated that she had been born with the arms extended. None of the paralysed muscles reacted to faradism, but to galvanism there was some response in all the muscles except the intrinsic muscles of the hand. The child did not appear to feel pin-pricks below the elbow or on the inner side of the upper arm. It was evident that all the cords of the brachial plexus had been damaged by upward traction of the arm at birth, and the inner cord had suffered most. Under treatment by splintage (with the upper arm abducted to a right angle and the forearm supinated and flexed) with massage and galvanic baths gradual improvement had taken place. Voluntary movement appeared first in the extensors of the first and second fingers, and by March, 1922, all the muscles above the elbow reacted to faradism. At the present time the only muscles which remained paralysed were the intrinsic muscles of the hand; but the flexors of the wrist and fingers were still weak and there was no hand-grip. The attitude of the arm was that of external rotation and hyperpronation. Sensation was impaired on the inner side of the hand and forearm. It was apparent that all the roots had recovered except the eighth cervical (flexors of wrist and fingers) and first dorsal nerves (intrinsic muscles of hand). Dr. Worster-Drought pointed out that this form of birth paralysis, the Klumpke or lower arm type, was comparatively rare, over 80 per cent. of brachial birth palsies being of the Erb-Duchenne or upper arm type. According to Sherren recovery was rarely complete if there had been no improvement up to the age of 3 months. Dr. Worster-Drought asked for opinions as to the advisability or otherwise of exploring the brachial plexus.

Mr. GEORGE PERKINS showed the following two cases, both of which had been operated upon by Mr. W. R. Bristow, under whose care they were at St. Thomas's Hospital.

Erb-Duchenne Paralysis.

E. W., aged 7, was first seen in February, 1921. The right shoulder was then abducted and the forearm pronated. Abduction and external rotation of the shoulder and supination of the forearm were impossible either actively or passively, although faradic response was normal in all muscles. In May, 1921, the subscapularis tendon was divided through an open incision and the arm put up in plaster so that the fixed deformity was corrected. The splint remained on for a year, and he had since had physical treatment. The present state was as follows: Shoulder: abduction: full passive and half active range possible; external rotation: half passive range possible, but no active power. Elbow: full active and passive flexion present. Forearm: supination; half active and full passive range of movement present. All muscles were active and the joints normal. The result was, therefore, a very useful arm.

Spastic Hemiplegia.

In the second case there was a history of weakness of the right arm and leg from infancy, although there was no history of a difficult labour, and there was consequently some doubt as to whether or not the case was one of true birth palsy. This case, a girl aged 10, was first seen in January, 1921, when she exhibited a right-sided hemiplegia, the right foot being in fixed equinus and the right forearm in fixed pronation with the wrist in fixed flexion. In January, 1921, Stoffel's operation was performed on the right internal popliteal nerve; the two branches to the heads of the gastrocnemii and half the supply to the soleus muscle were divided. In March, 1921, Stoffel's operation was performed in the arm, the nerves supplying the flexor carpi radialis and the pronator radii teres being divided. Her present state was such that she could walk almost normally, but while there was a full passive range of movement in all the joints of the arm the range of active movement was less and there was marked muscular incoördination and athetosis. Mr. Perkins remarked that the difference in results in the arm and leg was largely due to the difficulty in persuading the child to make use of a hand which up till the time of operation had been useless, whereas the child, if it walked at all, must use and develop full function in the leg that had been operated on.

Dr. BERNARD MYERS commented on the wonderful results obtained by orthopaedic surgery in cases of spastic paraplegia, and quoted as an instance the case of a child, aged 7, with scissor-leg deformity, who after several operations by Sir Robert Jones could now walk, run, and even jump. He also described a case of spastic hemiplegia in a new-born child, which died very soon after birth after exhibiting intermittent apnoea of the inspiratory type. At the post-mortem examination punctiform hæmorrhages were found in the cerebral cortex visible to the naked eye. Hæmorrhage into the pneumotaxic centre in the lower pons was found microscopically, although not visible to the naked eye. He believed that such microscopic hæmorrhages might be quite common, and that their occurrence might explain the apparent absence of cause for cerebral birth palsies when the person who conducted the post-mortem examination was content with examination by the naked eye alone.

Statistics from L.C.C. Schools.

Dr. F. C. SHRUBSALL gave some figures regarding the presence of difficult labour and asphyxia at birth of cases of infantile hemiplegia and diplegia at the London County Council special schools. The history of 146 cases had been investigated; in 32 cases there was a history of difficult labour, in 11 cases there was a history of asphyxia in the child, and in the remaining cases there was no history of either. These figures corresponded fairly accurately with the percentages of difficult labour and of asphyxia in the histories of children taken at random in the same schools. As regards their mental condition, which was regarded as important from the point of view of treatment, cases of hemiplegia were of average or better than average mentality in 1 per cent. of cases, and below average or "borderline" in 59 per cent., while cases of diplegia were of average mentality in 15 per cent., and below average or "borderline" in the remaining 85 per cent. of cases.

Mr. MAX PAGE contrasted the conditions under which the upper and lower limbs normally functioned; he explained the comparative lack of success in operations on the upper limb. Operative interference in the upper limb was only useful for the reposition of joints, and was useless as a means of restoring the finer movements. In the lower limb, however, Stoffel's operation was very valuable, as the movements were coarse and almost automatic.

Dr. E. BELLINGHAM SMITH questioned whether injury at birth was the cause of all the so-called

"birth palsies." He pointed out that precisely similar conditions might be produced by polioencephalitis during infancy. Parents were apt to remember non-existent birth injuries if these were suggested as a cause of paralysis. The number of Dr. Shruballs' cases in which there was no history of birth injury or of asphyxia tended to strengthen his view that many of these cases were in fact cases of polioencephalitis. He suggested that Mr. Perkins's second case was also one of polioencephalitis.

Dr. WORSTER-DROUGHT agreed as to the difficulty of diagnosis. In addition to polioencephalitis congenital syphilis had to be considered.

Mr. PERKINS pointed out that the mentality of the patient had little bearing upon the success of operation on the legs; even an idiot could walk and any case of diplegia could be made to do so by means of Stoffel's operation. Whatever their ætiology the orthopaedic surgeon grouped these cases as "cerebral spastic paralysis," in which the upper motor neurone had lost its normal power of controlling muscular balance. As a result the stronger group of muscles in a limb overcame the weaker, thus producing a deformity which in time became fixed. The orthopaedic surgeon's aim was to restore muscular balance by cutting off a part of the nerve-supply to the stronger muscles.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

THE MORTALITY OF COAL AND METALLIFEROUS MINERS.

A MEETING of this section was held on May 25th Dr. R. J. REECE, the President, being in the chair.

Prof. E. L. COLLIS read a paper entitled *An Inquiry into the Mortality of Coal and Metalliferous Miners in England and Wales*. He remarked that the mining community consisted for the most part of a compact body of men who did not change their occupation, were employed underground in dimly illuminated and artificially ventilated workings, had to put forth considerable muscular energy, and were exposed to the dust of the materials worked. Notwithstanding a general similarity of working conditions, the rates of mortality of different groups of miners differed widely. In coal-mining, pneumonia, bronchitis, and accidents were responsible for rates of mortality considerably above the standard of all occupied males, diseases attributed to alcoholism and phthisis were, on the other hand, less deadly amongst coal-miners than in the standard population. When the separate coal-fields were considered it appeared that the rate of mortality in the Lancashire field much exceeded that in any other and was nearly double the rate of Nottinghamshire coal-miners. It would seem that although local conditions must be held to contribute something to the differences, inquiry within the industry was needed to ascertain why they were so accentuated, particularly perhaps in the instance of phthisis.

The age distribution of phthisis amongst coal-miners brought it into line with the type affecting workers exposed to silica dust, but the unusually low absolute prevalence of the disease needed explanation. Possibly Mavrogordato's work provided the clue; he exposed one group of guinea-pigs to silica dust alone, a second to silica dust followed by coal, and a third to silica dust preceded by coal. His results indicated that "once silica is fixed in the lung tissues, coal exerts no eliminative effect. If anything the influence is in an opposite direction, but that a prior or even simultaneous exposure to coal dust appears to set up a condition in the lung which is inimical to the fixation of silica." With regard to mortality attributable to alcoholism, the order of the fields did not correspond to their order in respect of other causes of death. The miner was a "convivial" rather than an "industrial" drinker, usually taking no alcohol until the day's work was over. There appeared to be a relation between the depth of working and the mortality from alcohol.

Bearing in mind the strenuous nature of the task and the heat of the workings, it might be that the provision of drinking water underground would appreciably lessen the convivial drinking amongst coal-miners. Cancer was not an exceptionally important cause of mortality amongst coal-miners, cancer of the stomach and liver was the only form which showed a rate appreciably above that of the standard.

Passing to the three forms of metalliferous mining, (1) Tin-mining, (2) lead-mining, (3) ironstone-mining, it was remarked that the two former stood out because not only was the general rate of mortality in each excessive, but in each the same groups of disease were prominent—viz., phthisis with respiratory diseases and Bright's disease. Veins of tin ore—which in this country occurred exclusively in Cornwall—not only contained quartz but lay in a rock largely made up of quartz; much dust was generated in the workings. The high rate and age distribution of phthisis were in accord with what was recognised to occur amongst men exposed to the dust of silica. Recent work by W. E. Gye, W. J. Purdy, and E. H. Kettle on the toxicity of colloidal silica lent interest to the somewhat high rates for Bright's disease. The conclusion suggested was that silica dust was gradually converted into soluble silica in the lungs and caused the well-known fibrotic changes, but some escaped into the blood to be excreted by the kidneys which were consequently similarly affected. Lead ore was found in different districts; at Greenside, where the veins occurred in a granite country rock, the phthisis mortality was excessive, but not at Keswick, where the ore occurred in a limestone rock. Phthisis among hæmatite miners appeared statistically to resemble in a modified way fibroid phthisis and might be due to oxide of iron. Other workers, such as boiler-makers, exposed to oxide of iron exhibited a similar statistical type. This distribution was not found in carbonate of iron miners. Alumina dust, judging from the mortality data for slate quarriers, resembled oxide of iron and silica in its effect on the lungs.

A point mentioned in connexion with the possible influence of coal dust in lowering the incidence of phthisis upon coal-miners was supported by certain facts from the ganister industry. Ganister was a quartzite rock found underlying coal and overlying fire clay. Best ganister, which contained over 95 per cent. of quartzite, was made into first-grade refractory bricks and other material used for lining steel furnaces. The dust to which the workers were exposed was nearly pure silica and their mortality from phthisis excessive. Impure ganister, which contained veins of fire clay, was made into second-grade refractory materials used for coke ovens. The dust contained about 80 per cent. pure silica, but the workers had no excessive mortality from phthisis. The theory had been put forward that the influence of coal was due to some organic substance and that this substance might be washed down from the coal into the underlying fire clay where it was retained, this accounting for the protective action of the fire clay; it might be that the substance was of a nature to prevent silica becoming colloidal. An interesting point in connexion with tuberculous silicosis, first noted amongst metalliferous miners, was its low power of infecting contacts not themselves exposed to silica dust, such as the wives and children of the miners.

Discussion.

The PRESIDENT remarked that one factor of the low mortality from phthisis of coal-miners might be their comparatively high standard of diet. Dr. R. J. Ewart—whose untimely death they all deplored—had called attention to the correspondence between the rising curve of food consumption and the decline of phthisis; it would be of interest to learn whether the Lancashire field where, from the tables shown, it seemed that the phthisis rate had varied little of recent years, differed in the matter of food consumption from the other fields.

Sir KENNETH GOADBY spoke of the high sickness rate experienced by miners.

Dr. J. BROWNLEE fully concurred with the reader of the paper in emphasising the chemical as opposed to the crudely physical theory of the mode of action of silica.

Dr. M. GREENWOOD wished to associate himself with the President in calling attention to the loss epidemiological science had sustained by the death of Dr. Ewart, a most brilliant and original-minded investigator.

Dr. D. McKAIL referred to the difficulty of interpreting accident statistics, and Dr. J. C. McVAIL urged the importance of making fuller use of the morbidity data in process of collection under the National Health Insurance rules.

Prof. COLLIS, in reply, paid a tribute to the work of Dr. Ewart, the news of whose death had saddened a pleasant evening.

SECTION OF OTOTOLOGY.

A MEETING of the section was held on May 18th, under the presidency of Sir CHARLES A. BALLANCE.

An Instrument for Assisting the Deaf.

Mr. RICHARD LAKE and Mr. W. M. MOLLISON exhibited and demonstrated an instrument with this object, produced by the Marconi Research Department, which was favourably commented on by the President. The improvement shown by this instrument on previous attempts was due to the developments in the amplification of sound by means of electrical circuits, such as those used in wireless telephony, having enabled the problem to be approached from a new angle. This apparatus is known as the Marconi Otophone, and consists of electrical amplifying circuits in a cabinet, to which are connected a sensitive microphone and a pair of head telephones. By the use of a long flexible cord, the cabinet and microphone can be stationary while the patient is free to move about. The total weight is 16 lb., and the current is derived from dry batteries inside the instrument. Three switches enable the amount of current supplied to the valves to be regulated, and the speech amplification can be adjusted to five degrees. The object of the instrument, it was explained, was not to give a very powerful effect on the ears of a deaf person, but to enable a deaf person to hear an ordinary conversation in a room. It is claimed that by it a conversation at a distance of 6 feet is clearly reproduced. It is proposed to supply the instrument only on medical recommendation.

Mr. Mollison said he did not know whether the instrument would be of benefit to cases of internal ear deafness, or only for otosclerosis and middle-ear deafness.

The PRESIDENT thought the instrument was a remarkable one, and that it would be much improved chiefly in regard to weight and the cutting out of extraneous sounds.

Cases and Specimens.

Among the cases and specimens shown were two by Mr. F. SYDENHAM and Dr. DAN MCKENZIE. The first was a girl, aged 16, who suffered from epidemic cerebro-spinal fever with acute suppuration of the middle ear. When admitted to hospital 14 months ago the girl was semi-comatose and apparently quite deaf. The temperature was 103.5° F., there was a discharge from both ears, pain in both mastoids and oedema on one side. A double Heath operation revealed only a little pus, nothing sufficient to account for the grave symptoms. A good recovery was made, but the deafness persisted. Tuning-forks were heard for only a few seconds by air and bone. The calor tests were negative. The meningeal infection was considered to be due to that of the middle ear. The second case was one in which a woman, aged 35, had a temporo-sphenoidal abscess successfully evacuated six years ago. The abscess was a chronic one, with thick walls, and the first serious seizure occurred

year after the operation. Recently these were becoming more frequent. Dr. C. O. Hawthorne regarded the seizures as probably epileptic.

Dr. MCKENZIE related the case of a boy, aged 8, who was the subject of otitic pterygo-maxillary abscess which had been induced by thrombo-phlebitis of the jugular bulb. His temperature, 102°F., was not lowered by an immediate radical mastoid operation. On reopening the wound two days later, a small amount of pus led to an abscess in front of the bony meatus. This was opened and drained and the lateral sinus explored, but the latter contained no clot. As the temperature still remained high, Dr. McKenzie exposed and resected the internal jugular vein; it was found to be thrombosed down to the lower border of the thyroid cartilage. Next day there were signs of cavernous sinus thrombosis, followed in two days by death. The course of the infection in this case was rare.

Mr. T. H. JUST showed a woman, aged 27, who had a brain abscess due to otitic infection, also a right temporo-sphenoidal abscess, which latter was not revealed by clinical signs. She had had otorrhoea and deafness on the right side since childhood, but no other symptoms until shortly before admission to hospital last year. She then suffered from headache and vomiting. Her temperature was 101.2°F., pulse 120, and she kept her neck rigid. A radical mastoid on the right side was done, and the mastoid was found to be acellular, but the roof of the antrum was carious and an extradural abscess was found just above the tegmen. In the exposed dura mater a sinus was found leading to an abscess in the brain. This was opened and drained by tubes, and a slow and uneventful recovery ensued.

Mr. SYDNEY SCOTT described an interesting case of a girl, aged 10, whose left temporo-sphenoidal abscess was finally diagnosed owing to the definite and persistent amnesia for names and objects. On draining this, the general condition, temperament, and memory rapidly improved. Now the child was very bright and quite well 18 months after the operation.

Mr. Scott also described in detail two cases of cerebellar abscess in patients aged respectively 17 and 7, one of whom was still in hospital, the other quite recovered.

Mr. MOLLISON showed a man, aged 42, whose vertigo was cured by opening the external semicircular canal. The man's succession of attacks of giddiness and vertigo commenced while he was driving a van. There seemed to be normal membranes in both ears, but he was practically deaf in the left. Caloric response was sluggish, especially on the left. The left semicircular canal was opened, and within four weeks of the operation the patient was free from vertigo and he could hear a whisper at 8 feet from the left ear.

The cases were fully discussed.

CARDIFF MEDICAL SOCIETY.

A MEETING of this Society was held on May 8th, Prof. E. J. MACLEAN, the President, being in the chair.

Dr. R. CAMERON read a paper on

Renal Inefficiency and its Clinical Detection.

He limited the scope of the subject to the inefficiency associated with chronic nephritis, into the pathological and clinical classification of which he entered in some detail. Discussing the diagnosis of chronic nephritis, he pointed out the necessity for investigating (1) the presence, severity, and progress of general clinical signs; (2) renal symptoms—dropsy, uræmia; (3) cardio-vascular symptoms; (4) examination of the urine; (5) certain renal efficiency tests. The general clinical symptoms to be noted were weakness, loss of flesh—which might be masked by oedema—severe headaches, vomiting, and gastro-intestinal symptoms, recurring attacks of bronchitis and oedema

of the lungs, with shortness of breath. In addition there might be added symptoms indicative of kidney mischief—e.g., dropsy, uræmia, and cardio-vascular changes.

Dropsy was a diagnostic feature in one form of chronic nephritis, absent in others. Its causation was not fully defined. It had been ascribed to defective glomerular activity, to hydræmia, to damage of capillary endothelium by retained poisons, and to acidæmia rendering the vessels unduly permeable. Retention of salt and depletion of proteins were now considered the deciding factors. Defective blood protein might be a contributory cause of dropsy. In chronic parenchymatous nephritis the daily drain of protein in the urine might be 10 per cent. of the total blood protein. Addition of protein to the diet where there was dropsy reduced the dropsy, presumably because it raised the osmotic pressure of the blood in opposition to the controlling osmotic pressure of the tissues. Perfusion experiments with Ringer's solution sometimes caused oedema, and this oedema was prevented by the addition of colloids to the fluid.

Uræmia was a name given to a group of symptoms affecting the central nervous, the respiratory, and the gastro-intestinal systems. It was only found associated with renal inefficiency, and its recognition was therefore important. It had been called the metabolic catastrophe of renal disease, and in chronic nephritis it appeared only when the huge reserve of secreting tubules and glomeruli had dwindled till the critical minimum point had been passed. The cerebral or nervous type of uræmia might show drowsiness leading to coma, or muscular twitchings or spasms leading to convulsions. Sudden mania occasionally occurred, but delusions were common. Hemiplegia, or monoplegia, or amaurosis also occurred. Minor manifestations were headache, insomnia, muscular cramps, itching, numbness, or tingling. In the respiratory type, paroxysmal dyspnoea—so-called uræmic asthma—was a frequent symptom, and sometimes the first symptom observed of chronic nephritis. It was apt to begin in the early morning, recurring regularly at that time and leaving the patient free during the day. Later, it might last throughout the 24 hours. It was distinguishable from the wheezy respiration of bronchial asthma and from the air-hunger of diabetes by a peculiar whistling or hissing sound. Cheyne-Stokes breathing was often a well-defined feature at a later stage. In the gastro-intestinal type the patient might exhibit persistent hiccough, nausea, vomiting of an uncontrollable nature, and choleraic diarrhoea. Uræmia was simulated by many other conditions, notably alcohol and opium poisoning, diabetes, epilepsy, and the onset of general paralysis, cerebral hæmorrhage, tumour, and meningitis. The history and concomitant symptoms helped in the diagnosis, but the blood-urea and urea-concentration tests were of most service.

Cardio-vascular changes were frequently the first signs to draw attention to the nephritic condition. Distinctive symptoms were shortness of breath and giddiness on rising, epistaxis, persistent headache, and insomnia. These led to detection of high blood pressure, arterio-sclerosis, and cardiac hypertrophy. The blood pressure might be 160–200 systolic and 110 diastolic. High blood pressure was, therefore, an important index both in diagnosis and prognosis, but was sometimes present where renal tests gave no indication of nephritis. Even here prognosis must be guarded, on account of a possible cerebral hæmorrhage. *Retinitis* was present in 15 to 20 per cent. of cases, was of serious prognostic significance, but not invariably a sign of imminent danger. An important new field of investigation had been opened up by the introduction of certain chemical tests—chiefly the diastase test, the blood-urea test, and the urea-concentration factor. Generally the urea-concentration factor was a check on the blood-urea, for if the latter was high the amount of urea passed should be high, and gradually increase above 1.5 to 2.5.

Treatment.—As to diet, a diseased organ should not be overworked. It might rather be said, "Do not give it the work it cannot do." In renal disease we had been taught to deny almost entirely protein food, since the kidneys were the organs chiefly responsible for nitrogenous excretion. In acute nephritis, where the functions were almost universally suspended for a limited period, it was reasonable to carry out the rule. In the chronic interstitial kidney—the azotæmic type—the kidney could excrete its nitrogen so long as not more than 94 g. of protein was taken per day. Chittenden, the apostle of nitrogenous economy, said that 60 g. is necessary to maintain nutrition. Therefore at least 60 g. should be taken, allowing a balance of 34 g. If 60 g. were not taken in the food, a large part of this would be sent to the kidney in any case from endogenous metabolism. If the urea-concentration test showed above 1.5, much more could be taken. 62 g. would allow one egg, $\frac{1}{4}$ lb. fish, and 2 oz. of meat, and bread and vegetables would bring it up to 94 g. In the hydræmic type alone large quantities of protein could be given, as it lessened the dropsy and altered the whole outlook in life for the patient, who had hitherto been starved to no purpose. On the other hand, in a dropsical patient, who also showed signs of uræmia, it was safer to have a urea-concentration test done repeatedly before loading his blood with amino-acids, the precursors of nitrogenous waste. A certain amount of protein he should have to replace tissue waste, but not too much to overtax his renal power. It was Epstein who suggested protein feeding for dropsy, and experience proved that it was a great help. Epstein's theory that dropsy is partly the result of deficient blood proteins was not, however, generally accepted, and H. Maclean had worked out tables showing that, concurrently with the disappearance of the dropsy and the feeding with protein, the blood proteins—albumin and globulin—were not always increased, though the blood-urea was. Hence it was possible that urea was the cause of the increased diuresis and removal of symptoms.

Mr. D. J. HARRIES showed a

Large Cavernous Angioma of the Face

in a man aged 24. It was present at birth, and had gradually got bigger. It now occupied an area corresponding to the sensory distribution of the third division of the fifth nerve on the left side. It involved the whole thickness of the left cheek below the level of the angle of the mouth, the left lower lip, and the anterior two-thirds of the left half of the tongue, and there was an offshoot running upwards in front of the ear to the level of the upper border of the pinna. On April 6th, 1923, the left external carotid and all the veins running down from the left side of the face were ligatured. On April 20th the opposite side was similarly treated. This had reduced the mass to about two-thirds of its original size. Mr. Harries hoped to show the case again, after trying the effects of electrolysis. The case was interesting in that it suggested that the growth of the angioma was controlled by the sensory branches of the third division of the fifth nerve. Its extent could not be explained in terms of vascular or vaso-motor distribution.

ERRATUM.—In the last issue of THE LANCET (p. 1057) it was stated that at the Medico-Legal Society on May 15th the chair was taken by Dr. M. A. Collins. The name should, of course, have been Sir William J. Collins.

NORTH-WESTERN TUBERCULOSIS SOCIETY.—A meeting will be held at 3 P.M. on June 7th at the Tuberculosis Offices, Joddrell-street, off Hardman-street, Deansgate, Manchester, when Dr. H. de Carle Woodcock, of Leeds, will read a paper on the Diagnosis and Treatment of Tuberculous Glands. Medical practitioners interested in the subject are invited to attend.

Reviews and Notices of Books.

MEMOIRS: WITH A FULL ACCOUNT OF THE GREAT MALARIA PROBLEM AND ITS SOLUTION.

By Colonel Sir RONALD ROSS, K.C.B., F.R.S.
London: John Murray. 1923. Pp. 547. 24s.

SOME 20 years ago Sir Ronald Ross proposed to himself to tell the story of the solution of the malaria problem, because the facts when disclosed would reveal one of the most dramatic episodes in the history of medicine. But professional and professorial duties, no less than numerous malaria expeditions, the writing of a text-book on the prevention of malaria, and, lastly, duties and responsibilities in connexion with the war, regularly interfered with his project. The book, as completed, has taken a different plan from that originally designed; it is addressed now to the general reader in the form of memoirs, in whose compilation we learn that the author has seldom trusted to memory alone, but has verified most of the details from documents. He admits that these were "generally scribbled in the heat of action," but though this may imply haste it implies also the virtues of a record made before forgetfulness could intervene. A more critical attitude might have been adopted, he allows, but he has preferred to leave what he holds as facts to speak for themselves, praying that the book will have something more than its medical interests to hold the reader.

The work is long and begins with the pedigree of its author upon the inference of descent from the last Earl of Ross, who was killed in the fourteenth century. In nearer times the interesting line is traced back on the male and female side through several generations of soldiers and Indian officers. The author's grandfather was Lieutenant-Colonel Hugh Ross, who died comparatively young at Cawnpore in 1838; his father, Sir Campbell Ross, K.C.B., was a distinguished Indian soldier, and his mother, Matilda Charlotte Elderton, was the daughter of a lawyer and landowner in London by his first wife Matilda Halford, this lady, on the face of it, having been connected with the ancient Halford family whose property passed in the reign of George IV. to Dr. Henry Vaughan—later well known, under the style of Sir Henry Halford as President of the Royal College of Physicians of London. Sir Ronald Ross describes his father as a typical soldier, straight, stern, downright, and experienced; he was also an expert artist in water colours. He married while home on furlough, and the author of the Memoirs, the eldest of his ten children was born in India, in May, 1857, three days after the Indian Mutiny broke out.

At the age of eight Ronald Ross was sent to his uncle in the Isle of Wight for health and education, and for five years was at a boarding school near Southampton where his chief progress, we learn, was made in geometry and drawing, though he was much interested in music and worked out for himself the laws of harmony, so that he was soon able to harmonise any melody in any key. In 1873 he was first in a England for drawing at the Oxford and Cambridge Local Examination. These early inclinations toward mathematics and art have remained throughout the author's life, so that in the preface of this book we find his malaria work described as an episode, a self-imposed duty, secondary in relation to the man's ambitions with which he started, and which he has always cherished. He elected to study medicine, and at the age of 17 was entered as a student at St. Bartholomew's Hospital. Here he was much attracted by physiology and the revelations of the microscope, continued his musical studies with enthusiasm, read a imposing amount of poetry, and decided that he would himself take seriously to verse, as well, apparently, as try his hand at sculpture. But Sir Campbell Ross indicated that it was time for him to get qualified, and in 1881, armed with the necessary diplomas, I

passed into the Indian Medical Service and departed for India. His descriptions of life in Madras, Burma, Bangalore, and other centres close the first part of the Memoirs with a vivid picture of service in India, and all this section is full of reference to writing in prose and poetry at which he enthusiastically toiled, and which resulted in the publication of two dramas in verse and a romance, which won approbation from well-known writers, but which earned no money.

The second section of the book deals with the subject of malaria, and sets out the problem, the experiments, their failures and successes, the circumstances of the discovery and of its proof, and Sir Ronald Ross has been at considerable pains to make a complicated and interesting story clear to the general public whom he is addressing. His labours were unavoidably, and perhaps avoidably, interrupted by official duties and other circumstances, and considering the length of time which the investigations lasted it was impossible that misinterpretation and misunderstanding should not sometimes occur, but the verdict on the supreme value of Sir Ronald Ross's work has never been challenged, and the honours and awards which he has received, as recorded in one of the appendices, make a list of which any man might be proud. It is impossible, therefore, not to regret some of the passages in this and in the third section of the book, but none the less we have here pregnant lessons for the public. Once again a great scientific research is shown to have succeeded in face of public apathy, the protagonists are found to receive little material support, and the wide economic bearing of the discovery, as influencing for the better the death-rates and life conditions of millions of people, goes largely unobserved at first.

Throughout all his assiduity at the special work which has won him world fame Sir Ronald Ross pursued his experiments in mathematics and his ideals in verse. He gives many excerpts from his poems and a catalogue of his mathematical papers in an appendix. And how devoted he has been to both pursuits is instanced by a phrase in the preface, already quoted, in which the study of malaria figures almost as a by-industry. The need to find the right word entailed by the mechanics of prosody must, however, have served Sir Ronald Ross well in scientific writing, while his mathematical studies had a definite outlet in his studies of pathometry.

The book is thoroughly well produced, and should obtain a gratifying reception from the public.

PSYCHOLOGY AND PSYCHOTHERAPY.

Some Applications of Psycho-analysis. By DR. OSKAR PFISTER, Pastor in Zurich, Switzerland. London: George Allen and Unwin. 1923. Pp. 352. 16s.

THIS is a collection of essays on varied aspects of psycho-analysis. Opening his subject with apologies Dr. Pfister claims for it a place in science and demonstrates that it can fill up the "enormous gaps" in orthodox psychology. The essays are uneven; that on the Psychology of Peace and War is inconclusive and drifts into simple eloquence which may have psychological value but is not psychology. In Psycho-analysis and Art the author, after the analysis of a neurotic artist and his pictures, deduces that the work of art has a double meaning; the latent meaning, often not recognised by the conscious mind of the artist, is yet his property, whilst the manifest meaning is accessible to others. In the chapter on philosophy Pfister departs from the empiricism of Freud and ventures into metaphysics. The relation of psycho-analysis to ethics he claims to be a constructive one and the chapter can be recommended to those who fear a destructive influence. Pfister's special work is among adolescents, and his description of the treatment of their psycho-neurotic manifestations brings up the question, which he has more definitely raised in other writings, whether this treatment shall be a part of medicine or of pedagogy.

The translation runs smoothly, but occasionally a strange statement (as, on p. 96, that the existence of love and hatred is a rationalisation) makes one suspect a translator's error. Dr. Pfister writes as a broad-minded Protestant pastor and his views are on the whole expressive of psycho-analytical orthodoxy; there are probably many people to whom such a combination should make a special appeal.

Group Psychology and the Analysis of the Ego. By SIGM. FREUD, M.D., LL.D. Authorised translation by JAMES STRACHEY. London: George Allen and Unwin. 1922. Pp. 134. 7s. 6d.

HERE Freud examines the conceptions of Trotter and McDougall, and of Le Bon in his "Psychologie des Foules," in the light of psycho-analytical theory. The herd instinct is postulated by Trotter as one of the primary instincts, and man's collective action, with its intensification of the emotions and inhibition of the intellect, differs so much from his actions as an individual that this postulate has been generally accepted. Freud, however, analyses the instinct into elements which are constituents of individual psychology, identification with other members of the herd and recognition of the leader as the dreaded primal father being the main elements. Suggestion, or suggestibility, which to some psychologists is an irreducible primary phenomenon akin to the herd instinct, is similarly resolved, and Freud defines suggestion as "a conviction which is not based upon perception and reasoning but upon an erotic tie." This expresses the well-known psycho-analytic view, but the analysis of the herd instinct is novel. A great part of Trotter's argument is based upon the existence of the instinct in lower animals, which Freud neither denies nor attempts to explain. To English psychologists this will appear as a serious omission in what is an important contribution to social psychology.

Beyond the Pleasure Principle. By SIGM. FREUD. Authorised translation by C. J. M. HUBBACK. London: George Allen and Unwin. 1922. Pp. 90. 6s.

IN this book Freud pursues a speculative path into what he calls meta-psychology and reaches the thought that the pleasure principle ultimately tends to keep the psychic apparatus free from excitation and thus subserves the death instinct. His thesis is frankly an intellectual exercise and is not easy to follow. He reflects (p. 76), "I might be asked whether I am myself convinced of the views here set forward, and if so, how far. My answer would be that I am neither convinced myself, nor am I seeking to arouse conviction in others." The book is addressed only to those fully acquainted with psycho-analytic theory.

L'OPOTHÉRAPIE DU PRATICIEN.

By L. LEMATTE, Docteur en Pharmacie; Membre de la Société de Médecine de Paris et de la Société de Thérapeutique. Paris: A. Maloine et Fils. 1923. Pp. 235. Fr. 5.

THIS little volume is intended as a guide to the practitioner in the uses of the various organotherapeutic preparations. Dr. Lematte is not an advocate of the administration of dried extracts except in the case of thyroid and parathyroid glands. He prefers glycerine extracts given hypodermically, for he considers that by this method only can the active principle of the gland be retained and the full physiological effect secured. A good deal of space is devoted to a description of the methods employed in preparing standardised liquid glandular products and the precautions necessary to ensure sterile extracts. The various uses to which these extracts are put are detailed and in each case authority is quoted for the recommendation. The author appears to have ample faith in the value of gland extracts in the treatment of various disorders.

PRACTICAL MORBID HISTOLOGY.

A Handbook for the Use of Students and Practitioners. By ROBERT DONALDSON, M.A., M.D., Ch.B., F.R.C.S.E., D.P.H., Lecturer in Pathology and in Forensic Medicine, St. George's Hospital Medical School; Pathologist and Curator of Museum, St. George's Hospital. With a Foreword by Sir HUMPHRY ROLLESTON, K.C.B., M.D. London: William Heinemann (Medical Books), Ltd. 1923. Pp. 364. 15s.

THIS book is intended for students beginning the study of morbid histology and for practitioners reading for the higher examinations. The first two chapters are devoted to inflammation in general and the specific reactions of tuberculosis, lymphadenoma, and syphilis. Then follow chapters dealing with the more important microscopic lesions of the various systems, including a chapter on neuropathology, which is much more complete than is usual in a book of this size. Tumours are described in the next half-dozen chapters, and there is adequate space devoted to histological methods and formulæ. An appendix on worm parasites and their ova will probably prove useful to students immediately before their examinations. Except for their tumours, there are no descriptions of the lesions of the genital organs, and the ductless glands are omitted altogether. In order to establish the necessary continuity between morbid histology and the broader aspects of pathology, the descriptions of the histological lesions are preceded by brief accounts of the general pathology of the conditions and their morbid anatomy, a practice which undoubtedly enhances the value of the book. Dr. Donaldson writes clearly and has selected his material with skill. If in one or two minor points he may be open to criticism, he has on the whole avoided successfully those faults into which one who has to teach dogmatically for the sake of brevity is prone to fall.

In one respect his book is unique: it contains no illustrations. This omission is defended partly on the count of expense, both in the Foreword and in the author's preface, but not very convincingly. A practical text-book on histology without illustrations implies not only a power of lucid exposition in the teacher which few are fortunate enough to possess, but also a degree of concentration and native intelligence in the student which can scarcely be expected, and it offends against all modern theories of education. Like most proverbs, that one which states that "there is no royal road to knowledge" is merely epigrammatic nonsense. Of course there is a royal road. It has been built for us by our predecessors, but since its margins are not always very clearly defined, teachers are necessary to guide us through and past the dangerous places. The traveller's powers are quite sufficiently taxed in keeping up with his guide; that his energies should be expended on unnecessary toil, and his progress delayed for the lack of a helping hand, is obviously unsound. An ideal text-book on histology would consist of figures and legends; the greater the ratio of the letterpress to the figures, the greater its fall from perfection.

While we differ from Dr. Donaldson on a point of educational doctrine, we are free to admit that the final judgment must rest with the student; on his decision the success or failure of this otherwise excellent book will depend, and it may well be that he will find in it all the help he requires for the elucidation and study of his histological preparations.

I BELIEVE IN GOD AND IN EVOLUTION.

Second edition. By W. W. KEEN, M.D. London and Philadelphia: J. B. Lippincott Company. 1923. Pp. 102. 4s. 6d.

THERE has lately been a curious revival in America of the Victorian notion that Darwin and the Bible are incompatible. Some wild Western State is, indeed, reported to have contemplated, perhaps even achieved,

legislation prohibiting the teaching of evolution in the schools. The veteran leader of American surgery put out this small book last year to combat this kind of reaction; it has evidently met a want, for a second edition has soon appeared. The proposal defended is sufficiently stated in the title. The book consists of 15 short chapters giving some of the points in man's structure which illustrate his evolutionary history, with brief expositions of the cell doctrine and other related matters. The text will persuade no one who is worth persuading that the idea of evolution is true unless they want to believe, any more than Paley's Evidences ever convinced anyone against his will of the truth of Christianity. What is significant is that a great American, who has spent a long life in the service of his profession and of his fellows, should come forward and say quite definitely that he does believe in God and in evolution too. There will be few persons who will be willing to brush aside such a piece of personal testimony without looking further into the matter.

PHYSIOLOGY OF REPRODUCTION.

Second edition. By FRANCIS H. A. MARSHALL, Sc.D. Camb., D.Sc. Edin., F.R.S., Fellow of Christ's College and Reader in Agricultural Physiology in the University of Cambridge. With contributions by WILLIAM CRAMER, Ph.D., D.Sc., M.R.C.S., L.R.C.P.; JAMES LOCHHEAD, O.B.E., M.A., M.D., F.R.C.S.E.; and CRESSWELL SHEARER, M.D., Sc.D., F.R.S. London: Longmans, Green and Co. 1922. Pp. 770. 36s.

THIS book, which has justly earned an international reputation, contains a scientific account of everything of importance which has been discovered or surmised concerning the reproductive functions in animals of all classes, but more particularly in mammalia. It will appeal to physiologists and zoologists, obstetricians and veterinarians, and impresses us as being the product of a lifetime of careful work, and the bibliography showing that the author has searched very widely for information. Few facts are to him too trivial to be included, and no problems too big for thorough discussion. The sections which relate to pregnancy, fertility, sterility, birth, sex determination, menstruation, and lactation are, naturally, of the greatest interest to medical readers; these and other wide subjects are practically treated, while the general outlook of the book is academic.

So well-written, well-published, and valuable a book, and, moreover, one already so well known, needs no further praise. The reputation gained by the first edition has been more than maintained in the present up-to-date version, to which the author's collaborators have contributed no insignificant part.

BOOKS FOR NURSES.

Obstetrical Nursing. By CAROLYN CONANT VAN BLARCOM, R.N. London: Macmillan and Co. 1922. With 200 illustrations and 8 charts. Pp. 558. 15s.

THIS is an interesting book written mainly for the purpose of widening the outlook of maternity nurses, and of teaching them that methods with which they may be unfamiliar may be just as efficacious and trustworthy as those which they have been taught in their own training school. Miss van Blarcom was for some time instructor in obstetrical nursing in the Johns Hopkins Hospital, and it is thus not surprising to find that the book contains a clear and most practical account of the subject. One of the features of the book is that a good deal of space is devoted to describing how results similar to those obtained in hospital can be obtained with improvised appliances in the patient's own home. The volume gives an interesting picture of the manner in which maternity nurses are trained in the best of the American training schools, and contains many points which will strike the English nurse as novel but none the less instructive.

While we have nothing but praise for the purely nursing portion of the book, there are some statements relating to midwifery practice to which we could hardly subscribe. The maternal mortality of placenta prævia in a well-conducted lying-in hospital is more nearly 4 than 40 per cent., and surely more mention might have been made of the commonest and in many instances the best method of treatment in such cases—namely, version. Very little is said of the more common variety of slight external accidental hæmorrhage and its treatment. The paragraph dealing with the treatment of more severe cases would give the nurse but little idea of what is usually done. The axis-traction forceps illustrated are of a very old pattern, and the statement that the introduction of bougies is generally followed by the onset of labour within 6–24 hours is unhappily far from the truth. In spite of these minor defects, however, we can fully commend this work, which might well be in the hands of all those who have to undertake the teaching of nurses in obstetrical nursing, and we congratulate the author.

Obstetrics for Nurses. By EVERETT DUDLEY PLASS, M.D., Obstetrician-in-Chief, Henry Ford Hospital, Detroit; formerly Associate Professor in Obstetrics, Johns Hopkins Medical School. London and New York: D. Appleton and Company. 1923. Pp. 410. 15s.

THIS book has been written to provide for nurses a simplified treatise on the more or less scientific side of the practice of midwifery. To those who object that the work is too theoretical for nurses the author would say that nurses form one of the best media by which the public can be educated on medical matters. It is doubtful, however, if the degree of general education of the ordinary nurse is sufficient to enable her to make use of such an advanced work as the one under review. It could be used with greater advantage by the average medical student. The book is largely based upon the teaching current at the Johns Hopkins Hospital and this is sufficient to indicate that it is founded on sound principles. A number of excellent illustrations, many of them from Dr. Whitridge Williams's large work on Obstetrics, add to the value of the text. In a book of this kind it is always interesting to see how the author deals with some of the graver emergencies of obstetric practice, such as the ante-partum hæmorrhages. With the section devoted to a description of the nurse's responsibility in such cases we are in entire agreement, although, naturally, we do not agree with all the recommendations as to treatment; these are in many ways controversial subjects and there is still much difference of opinion even among the experts. Nurses who have already some knowledge of the subject will find this book of great use in enabling them to extend and complete their bedside teaching.

Obstetrics for Nurses. Sixth edition. By JOSEPH B. DE LEE, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School, Chicago. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 525. 15s.

THIS excellent little book has reached a sixth edition, clear proof of its worth and usefulness. The author has carefully revised and brought up to date this new edition. In view of the increasing performance of the operation of Cæsarean section the chapter dealing with this procedure has received considerable additions. As the practice of patients being delivered in maternity homes is becoming more and more prevalent more attention has been given to the recognised practice of the best of these institutions, and the technique of the Chicago Lying-in Hospital has been more fully presented. The balance between the two subjects to be considered in a book of this kind—namely, obstetrics for nurses and obstetric nursing—has been well struck, so that neither has been dealt with too fully to the detriment of the other.

We can cordially recommend this book to maternity nurses and midwives as informative and trustworthy.

JOURNALS.

QUARTERLY JOURNAL OF MICROSCOPICAL SCIENCE. Edited by Prof. GOODRICH, F.R.S. Nos. 264 and 265.—The two latest parts contain respectively six and seven memoirs which show the usual diversity of topic within the limits of zoology. Among the articles in No. 264 is one dealing with ovum-like bodies in the testis, by F. A. E. Crew and H. B. Fell, who show how cases of hermaphroditism may be wrongly described; for they illustrate in the testis of a number of mammals round bodies which show a most striking likeness to ova. These bodies are merely due to degenerative processes shown by the normal testicular cells. In No. 265 an important paper is that by W. N. F. Woodland on the Tapeworm genus *Amphilina*. These worms retain the non-strobilated condition of most other "flat worms." Besides giving a full account of the structure of the species *A. paragonopora*, the author surveys critically the other named species of the genus. Prof. T. T. Flynn deals with the "Yolk-Sac and Allantoic Placenta in Perameles," which was originally discovered by Prof. J. P. Hill to be the only marsupial genus with a proper allantoic placenta. In extending Prof. Hill's results the present author comes to the conclusion that the placenta of perameles is most like that of the carnivora among the Eutherian mammals, a point of great interest when the relationship of the extinct order Creodonta to both groups is borne in mind. Incidentally Prof. Flynn laments the approaching disappearance of marsupials of the Tasmanian fauna, and thinks that the developmental stages of the Thylacine will never be investigated, and that "it is extremely unlikely that detailed investigation will be possible in the case of *Sarcophilus*." An account of the foetal teeth of the sperm whale is communicated by Dr. F. E. Beddard; the foetus, only four and a half inches long, of this gigantic mammal, was obtained from whale-fishers in Natal by the well-known curator of Durban Museum, Mr. E. C. Chubb.

THE INDIAN JOURNAL OF MEDICAL RESEARCH for April contains 23 articles. R. McCarrison writes upon the Pathogenesis of Deficiency Disease with reference to the function of the adrenal gland, its relation to hydrogen-ion concentration, and the effect of heat, cold, and sunlight on the action of epinephrin.—H. E. Shortt has an article upon the Pathogenicity of Insect Flagellates to Vertebrates with special reference to *Herpetomonas denocephali*.—P. J. Barraud continues his revision of the culicine mosquitoes of India.—S. D. S. Greval contributes a preliminary report upon schistosomiasis in Arabia, from which it appears that both *S. hæmatobium* and *S. mansoni* occur in the hinterland.—U. N. Bramachari continues his articles on the Chemotherapy of Antimonial Compounds in Kala-azar.—F. W. Cragg writes on the distribution of Indian rat fleas and the zoophilism of anopheles in relation to the epidemiology of malaria in India, and together with C. S. Swaminath contributes some observations on the bionomics of *Xenopsylla astia*.—T. N. S. Raghavachari considers the Mills-Reincke phenomenon, or the indirect benefit conferred on a community by a protected water-supply, to be inapplicable to Indian conditions.—J. W. Cornwall writes on the Structure of the Salivary Pump in Certain Blood-sucking Insects, and S. R. Christophers describes a new East African mosquito *A. kingi*.—W. F. Harvey and H. W. Acton have examined the degree of efficacy of anti-rabic treatment, and the former has completed the ninth section of his series on Bacteriological and Laboratory Technique.—L. A. P. Anderson contributes a note on a fumigation method by hydrocyanic acid gas on a small scale.—R. H. Malone describes fallacies associated with the use of laboratory animals for isolating pathogenic micro-organisms.—J. Cunningham and J. A. Cruickshank consider a standard necessary for preparation of vaccine lymph, and describe a new

test.—C. A. Gill writes on his ability to predict malaria epidemics, R. H. Malone on the solubility of micro-organisms in bile, W. F. Harvey and K. R. K. Iyengar on the duration of protection after prophylactic inoculation.—H. E. Shortt has a record of kala-azar research work carried out in Shillong in 1922.—M. H. Sowerby gives an account of bovine tuberculosis in the Bombay Presidency.

ANNALES DE L'INSTITUT PASTEUR. Vol. XXXVII., No. 4, April, 1923.—This number opens with a review by M. Nicolle and E. Césari on the present methods of diagnosing pathogenic organisms. They note the difficulty of speaking strictly of species of bacteria, and point out that, on the other hand, the reactions of antigen and antibody connote "specific" groups sometimes of a different order. The difficulties in the way of identifying a given specimen of an organism may be very great or even insurmountable on account of loss (perhaps temporary) of certain characters.—E. Marchoux gives an interesting account of the clinical symptoms and pathological changes in a human case of a disease which he believes to have been identical with rat leprosy. The case had been diagnosed as an unusual form of human leprosy. The lesions much resembled leprosy, and were crowded with acid-fast bacilli, as may be seen figured in the

coloured plates. The disease was, however, experimentally reproduced in the rat. The patient died of secondary streptococcal infection.—G. Sanarelli contributes a paper on the experimental infection of animals (rabbits and guinea-pigs) with the cholera vibrio. He deals with the manner in which these microbes can enter the body, and details experiments to show that they can reach the blood through the buccal or nasal mucous membrane, and then, rapidly leaving the circulation, settle in the intestinal walls.—An important communication, by L. D. Walbum and J. Mörch, from the Serum Institute at Copenhagen describes the effect of intravenous injection of chloride of manganese and other metallic salts on the yield of antibodies in animals undergoing immunisation. Experiments were made on rabbits, goats, and horses which, under this form of auxiliary treatment, produced very much enhanced supplies of antitoxin or agglutinin. A considerable number of experiments are described in detail. Figures relating to the rate of production in units of antitoxin per c.cm. support the claim that the administration of these salts to horses in this way is a valuable addition to the previous methods in use. The irregularity in the production of antitoxin due to variations in the strength of the available toxin are held to have been excluded.

A FURTHER NOTE UPON THE PERIODICITY OF INFLUENZA.

BY JOHN BROWNLEE, M.D., D.Sc.,
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MEDICAL RESEARCH.

SOME time ago I published a note upon the periodicity of epidemics of influenza,¹ and I think that the present time admits of a second short statement regarding how far the 33 weeks periodicity in influenza outbreaks has been maintained. In 1918 and 1919 there were three large epidemics of influenza. From the crest of the July epidemic in 1918 to the crest of the epidemic in March, 1919, is 33 weeks, but there is no evidence of the further continuance of a periodicity starting from July, 1918.

If a 33 weeks period holds, then the start must be from the very large epidemic which culminated in the first week of November, 1918. In the accompanying table I give the weekly deaths from October of that year in a series of columns, indicating the epoch when an epidemic would be expected by a vertical line to the right of the figures. In the former statement it was noted that unless the expected period falls between the beginning of November and the middle of June an outbreak was very unlikely. From November, 1918, the first outbreak was due about the twenty-seventh week of 1919, and according to expectation no increase in the number of deaths is noted. The crest of the next epidemic was due in the eighth week of 1920, the epidemic actually culminating in the twelfth week. The next cycle should culminate in the forty-first week of the same year. Nothing is observed, as would be expected. In 1921, the twenty-second week marks the crest of the cycle. The greatest number of deaths in the epidemic this spring, however, occurred on the ninth or tenth week, though there was a slight recurrence which had its maximum in the nineteenth week. A further 33 weeks brings us to the third week of 1922, which, as seen from the table, marks the height of a very severe epidemic. The following cycle was due in September; as usual, at this season no effect in the death-rate is observed. The seventeenth week of this year is the next date of the epidemic crest, and it is easily seen that although during the last week there were still 207 deaths, this must be about the middle of the epidemic wave.

On evidence like this too much stress cannot be laid, but it is interesting to note that so far the cycle has held fairly true, only one epidemic occurring

Weekly Deaths from Influenza in 96 Great Towns.
October, 1918–1923.

No. of week.	1918.	1919.	1920.	1921.	1922.	1923.
1		441	73	101	819	57
2		380	62	87	1262	69
3		274	85	66	1433	78
4		222	66	61	1450	69
5		272	98	61	1144	65
6		604	109	93	759	66
7		1363	162	103	670	71
8		3046	178	138	525	59
9		3889	196	167	306	79
10		3218	229	149	201	84
11		2320	312	151	146	81
12		1361	392	121	104	125
13		888	379	130	113	120
14		569	332	97	117	188
15		468	306	111	109	184
16		347	259	82	93	169
17		229	202	93	75	143
18		172	201	104	69	175
19		142	216	114	55	207
20		108	211	94	45	
21		63	188	71	55	
22		51	148	67	36	
23		60	86	33	26	
24		41	65	35	27	
25		29	37	32	18	
26		33	34	20	25	
27		17	44	25	22	
28		31	33	27	24	
29		18	21	19	18	
30		23	33	25	22	
31		18	26	14	19	
32		21	30	15	15	
33		18	16	9	11	
34		16	20	12	16	
35		15	17	17	10	
36		19	20	21	12	
37		29	28	27	18	
38		14	18	22	21	
39		20	27	37	28	
40		32	33	34	32	
41		39	34	49	31	
42	1895	57	30	46	43	
43	4482	71	35	30	41	
44	7412	71	29	32	48	
45	7560	56	42	44	71	
46	5916	74	60	59	64	
47	5106	79	69	80	71	
48	5119	63	65	128	60	
49	3574	77	61	149	52	
50	1885	81	75	212	68	
51	1014	64	81	237	61	
52	581	43	90	418	51	
53		52				

independently. To myself, however, it would be more convincing if the cycles recurred in sequence to the epidemics of July, 1918, and March, 1919, rather than to the November epidemic, which for the season of its occurrence has, during the last 30 years, been a unique phenomenon.

¹ THE LANCET, Nov. 8th, 1919.

THE LANCET.

LONDON: SATURDAY, JUNE 2, 1923.

THE GENERAL MEDICAL COUNCIL.

THE opening of the 117th session of the General Medical Council on Tuesday last, May 29th, occurred on the day after the President, Sir DONALD MACALISTER, had completed the further term for which he had been elected as President. The academic position therefore was that his Address took the form of a communication setting forth the chief events with which the ex-President had dealt during the period that had elapsed since the last meeting. But as Sir DONALD MACALISTER'S re-election to the chair followed immediately, this communication became the official Address. This is the nineteenth Address which he has delivered from the chair during 34 years of consecutive service on the Council, and it needed no assurance from himself that his interest in the work of the Council is as keen now as it was when he first joined its membership, for his conduct of business in the chair has regularly and increasingly confirmed the fact. We congratulate the Council on giving a fresh proof of their conviction that no change of President is required.

As will be seen from another column Sir DONALD MACALISTER was able to report interesting progress in certain directions. He noted that legislation had taken place amending the Dangerous Drugs Act and in certain details the old Pharmacy Act of 1868, thereby abating the stringency of certain rules in regard to the scheduled drugs as they affected registered practitioners, while strengthening the penal code for criminal breach of the regulations. At this point he was able to express the sense of the Council of the assistance that had been given in shaping the new Act by Members of Parliament also registered medical practitioners, and there is no doubt that the House of Commons gained distinctly during the passage of this measure by the fact that throughout the considerable discussions men who actually knew where the dangers lay were able to speak of them from first-hand knowledge. The Dangerous Drugs Act might easily have become actually oppressive to practitioners. We congratulate Sir SYDNEY RUSSELL-WELLS, a member of the Council, and his medical colleagues in the House of Commons on having shown that the presence of members of our profession is a gain to the House and to the community. The closing paragraph of the Address deals with the statistics of the medical profession, which it is always well to have before us because of the two conflicting statements regularly made in public, that the medical profession is overcrowded, and that the medical profession is undermanned. It may be remembered that during the years 1916-19 there was a rapid rise in the number of registered medical students—namely, from 1875 to 3420, and that then the figures fell, until last year the total was much the same as it had been six years previously. The indications are that this figure—namely, something between 1800 and 1900—will be maintained unless the new regulations lead to its

diminution. The question is, whether this recruiting figure, on transformation into terms of registered medical practitioners, will maintain the medical profession in its proper numerical relation to the public. We believe, and we think the opinion is shared by those who have given serious thought to a serious matter, that the total of registered practitioners can be kept at its right proportion upon the material which is now finding its way into our ranks as students, but it is to be hoped that the organisation of the profession will lead to a better distribution of the personnel. For it is the faulty distribution of our practitioners which gives the conflicting impressions that their number is too large or too small.

BRITISH EMPIRE CANCER CAMPAIGN.

WE publish this week the appeal of the British Empire Cancer Campaign, which sets out briefly and well what may be considered the general opinion of enlightened persons in respect of cancer problems; apathy should be impossible in face of the destruction of life, but panic should be equally unwarranted, while so much has been done, and while so much is in the doing to clear the paths towards prevention and remedy. The mortality from cancer is given in the appeal, and the ignorance of causation is admitted to affect profoundly all big schemes in either direction. The general message of the appeal is that a great movement is needed under which medical work along all its branches, and lay work in all its developments, should be directed towards the amassing, collating, and sifting of evidence bearing upon causation. The new movement, it is expressly said, will supplant nothing good that is being done; it will not interfere with those who are already striving, and, be it remembered, striving with certain definite good results, to free mankind from one of its direst foes. On the contrary, it proposes to advance and supplement all individual and coördinated activities as they exist, forming in regard to these activities a general bond alike for the improvement of methods and the avoidance of overlapping. If certain experiments, directed towards clearing up one of the cancer problems, can be assisted either by analogous experiments under different conditions, or by different experiments under analogous conditions, valuable help to the researches will be afforded; and if upon the multiplication of these researches statistical methods can be brought to bear, in order to ascertain what common truths have emerged, every aspect of cancer research will gain in clearness. The variety of environment, or the variety of personal equation in the investigations, can be made allowance for, and all workers will feel that they stand upon more solid ground.

New movements cannot bring about the prevention of cancer because the prime effort is to be made in search for the cause. This is true, but while the scientific explorer cannot promise that the shaft which he sinks will reveal precisely the ore for which he is hunting, nothing valuable can be brought to the surface save by mining; and as a set-off to this uncertainty it must be remembered that unexpected treasure has been gathered in over and over again by experimental methods. But a proportion of the material results of any Imperial appeal of this sort should be devoted to the relief of conditions whose primal origin we do not know, for at any moment, if a method of relief proved successful, light might be shed upon every aspect of the case. It is the logical and desirable sequence of events in all courses of

therapy to know the cause, to remove it, and to obtain relief; but it is also logical to deduce from the measure of success with which a method has met the cause of the originating mischief. All intelligent clinical work is research work, and research work into cancer, when conducted at a hospital which is in touch with a first-rate teaching school, means to-day a combination of bedside and bench inquiry. At such an institution the best consensus of opinion upon a new procedure can be obtained. Methods that have been approved at special institutions can be employed by other clinicians, and the voices of the chemist and physiologist can be heard either upon points of dispute or in origination of plans made feasible by laboratory experiment. All the money obtained by the appeal should be used to search out the cause of cancer, but it is to be hoped that the Executive Council of the movement will recognise that a cause is best identified by showing that its removal leads to prevention or that its identification leads to improved clinical treatment.

Many of us know that discoveries in certain laboratories are giving good reason for encouragement. Therefore it is necessary—and this is recognised in the appeal—that support should be rendered from the beginning by the new fund to the endowments of the existing centres of cancer research. And all grants should in the main be given without stipulations or restrictions limiting the nature of the investigations for which they are to be used, since (the truism has already been indicated) it is impossible to say what line of research may lead to issues of practical value. Taking the cancer problem as a whole, the time for definite team-work has not yet come, for there is as yet no one road along which a team can be driven. But different circumscribed problems may arise which for some special reason have not been attacked by the existing institutions and which could be dealt with by a temporary organisation of ad hoc workers. In applied sanitation, in veterinary medicine, and in botany many things are occurring whose explanation might have a great bearing, by analogy, on the explanation of cancer, and along all such lines the new organisation proposes to act as a clearing-house and to instigate and support investigation. The Executive Council, whose names are appended to the appeal, we are informed, is provisional, in that necessary names can be added; this is good hearing, for strong as it is in certain directions, the absence from its consultations of the representatives of four important branches of science cannot escape attention. We understand that it is possible that the Medical Research Council may nominate, in consultation with the Royal Society, some men with first-hand knowledge of research work, certain of whom, we hope, will be available to act as chairmen of the working committees which it is proposed to set up. The British Empire Cancer Campaign includes on its executive many strong and well-selected persons, has behind it the great organisation of Red Cross and sound financial backing, while it arrives in reply to widely expressed public demand. Its success should therefore be assured.

GLASS OR METAL CONTAINERS?

IN an interesting book on "Botulism," which was reviewed in THE LANCET last week, Dr. GERALD LEIGHTON points out that it is only by efficient sterilisation that any foodstuff can be rendered absolutely safe when preserved. In discussing the temperatures required he raises the point as to

whether the containers themselves will stand the heat required, particularly if made of glass. The latest investigations show that the spores of *B. botulinus* are very resistant, and indeed, according to ESTY,¹ more so than those of the other anaerobes which he tested. While the heat resistance of different strains of *B. botulinus* varies considerably (and ESTY tested 112 different strains) their maximum resistance was as much as 330 minutes (five and a half hours) at 100° C. LEIGHTON quotes the California State Board of Health regulations, which require for large-size spinach tins heating for one hour at 252° F. (122° C.), and for olives 240° F. (116° C.) for not less than 40 minutes. In any question involving the temperatures of sterilisation for canned foods the type of container used is of importance. LEIGHTON discusses this question at some length, and points out that while the glass container is preferred by the average consumer, and has undoubted advantages, it is open to doubt whether these advantages are not outweighed by other adverse features, including the risk of fracture and the liability to under-sterilisation. In a valuable report to the Local Government Board on Preservatives in Meat Foods packed in Cans or Glass, Dr. A. W. J. MACFADDEN² pointed out that until recent years most of the preserved foods manufactured in this country were packed in tinplate receptacles, but that it has been supplanted of late years to a very large extent by glass and earthenware, more especially the former, in the case of goods intended for the home market. He added, "So much have glass-packed food materials advanced in public favour, that it appears to be profitable for certain home manufacturers to transfer imported canned meats, such as tongues, sardines, &c., from their tin receptacles into glass containers."

The respective merits of glass or tin are of considerable practical importance, and something can be said on either side. The main advantages in favour of glass containers are that they avoid metallic contamination, the purchaser can get a view, although a very partial and imperfect view, of what he is buying, they are more easily opened, and appear to be cleaner. The consumer often has the idea that food in a glass retainer is a superior type of product and so is willing to pay more for it when so vended. The advantages of tins are that they are cheaper, they cost much less in freightage rates, they are more readily sterilised with less risk of damage or fracture, and it is easier to make them hermetically tight. Our knowledge is sufficient to weigh critically these relative advantages and disadvantages and to advance an opinion on public health grounds as to which is to be preferred. Of the advantages of glass, apart from the real convenience of ease of opening, the only one of any importance is its avoidance of metallic contamination. The manufacture of tins has improved enormously, and with the modern type of tin the risk of lead poisoning is practically non-existent. The possibility of tin contamination remains, but it is evident that the danger of tin poisoning has been enormously exaggerated, and in spite of the vast increase in the consumption of tinned foods there are no recent proved cases of tin poisoning. Provided very old and stale tins are kept off the market, the

¹ J. R. Esty: American Journal of Public Health, February, 1923.

² A. W. J. MacFadden: Report No. 6 (Food) Local Government Board, 1908.

danger of tin poisoning hardly exists. From the scientific standpoint, not only in relation to botulism but also as affecting general bacterial contamination, the two factors of most importance are the efficiency of sterilisation and the problem of satisfactory closure. The sterilisation of canned foods is an extremely complicated problem, and is governed by many factors, most of which operate whether tin or glass containers are employed, and only those which affect this particular issue need be discussed. It has been pointed out that to make foods safe against the risk of botulism very high and sustained temperatures are necessary. It is true that it is possible for glass to be manufactured and used possessing high resistance to heat and which will stand these sustained high temperatures. Such special glass is considerably more costly, and unless definite regulations as to its use are made obligatory there is a strong inducement to manufacturers to use cheaper glass which may not stand the strain. The fact that a higher percentage of loss from fracture is to be anticipated is an ever-present inducement to the operative in charge of the sterilisation to avoid this by using lower temperatures, even if these are unauthorised. These points can be summed up by saying that the use of tin containers undoubtedly facilitates the task of the canner in submitting his food to safe sterilisation temperatures.

The greater ease with which tins, as compared with glass, can be made air-tight is probably of as great importance as the question of resistance to heat. The extensive work recently carried out for the Food Investigation Board has demonstrated the great significance of air access as a factor in spoilages. The point is of particular pertinence as regards the botulism risk. There is considerable evidence that the spores of *B. botulinus* alone—i.e., if unaccompanied by any living bacilli or toxin—are unable to originate the disease when introduced into the body by the mouth. Should, therefore, a few spores be present and remain undestroyed by any sterilisation given it is of fundamental importance to prevent their development into bacilli which will then produce toxins. In this connexion an air-tight container is an important factor, for even with such a strict anaerobe as *B. botulinus*, air access (for complicated reasons which need not be discussed) facilitates the development of the spores into bacilli with the production of their excessively poisonous toxin. The closure of tins has now reached a high degree of efficiency, and the percentage of tins not air-tight has for most products been reduced to very small proportions. With glass containers the problem is much more difficult, and from this point of view glass would seem to be decidedly inferior to the tin container. A consideration of all these factors strongly favours the view that the risk of harmful bacterial infection, including botulism, is decidedly less if tin containers are given the preference to glass.

UNIVERSITY OF LONDON.—A course of four advanced lectures on Tropical Hygiene will be given at St. Bartholomew's Hospital Medical College, West Smithfield, E.C. 1, by Dr. Andrew Balfour, at 5 P.M. on June 12th, 14th, 19th, and 21st. The subjects to be dealt with are: (1) Sojourners in the Tropics; (2) Problems of Acclimatisation; (3) Some Foodstuffs in the Tropics; (4) Modern Weapons against Insect-borne Diseases. The chair at the first lecture will be taken by Lord Stanmore. The lectures are addressed to advanced students of the University and to others interested in the subject. Admission is free, without ticket.

Annotations.

"Ne quid nimis."

THE EXTENSIONS AT UNIVERSITY COLLEGE MEDICAL SCHOOL.

THE new building at University College, London, arranged to house the departments of anatomy, histology, and embryology, which was inspected by the King and Queen on May 31st, is an imposing edifice. The building, designed by Prof. F. M. Simpson, F.R.I.B.A., faces Gower-street, and has a frontage of 154 feet, exclusive of the end gateway, which gives access to the south quadrangle. At the back it joins the physiology building. It consists of five floors, and in addition a sub-basement, which contains the heating chambers, coke cellars, tank, and specimen rooms. Of the five floors the lowest is devoted mainly to practical work in anatomy—that is, dissecting and radiography—the next floor to teaching accommodation and museums, the third and fourth to research in anatomy, histology, and embryology, and the top floor to teaching in microscopic anatomy. On the basement level the large top-lighted dissecting room adjoins rooms for the X ray examination of the living subject and for the study of X ray plates, so that students may be able, when dissecting any region of the body, to correlate the X ray appearance with what they see and handle in their dissections. On the ground floor are the museum and preparation room, a lecture theatre, fitted with the latest Zeiss epidiascope, a demonstration theatre, and rooms set apart for teaching and research in anthropology. The first floor contains a library, certain private and research rooms, and a laboratory for comparative neurology, where a collection of neurological preparations will be housed. Laboratories for embryology and histology occupy the second floor, where adequate accommodation for preserved material and microscopical preparations is also provided, besides a lecture room fitted with apparatus for projection of histological preparations and dark rooms for photographic work. The main students' laboratory for microscopical anatomy is situated on the third floor. It extends across the width of the building and is lighted by two continuous sky-lights facing north, as well as by windows facing the south quadrangle on the one side and Gower-street on the other. About 90 students can be accommodated in the laboratory, adjacent to which are preparation rooms and research laboratories. Accommodation for keeping live animals is also provided, and a room is set aside for the cinematographic study of animal movements by an apparatus by means of which it is possible to take up to 300 photographs per second of moving objects. Since the film can be projected at a rate of about 16 to 18 per second the whole movement is observed slowed 10 to 15 times, and by this method the analysis of reflex movements and muscular adjustments such as those of posture will be rendered possible. The X ray department is admirably equipped and the protection of all engaged in the work of the department has been carefully provided for. Part of the Rockefeller gift, which has made it possible to erect this model institution, has also been used to effect certain much-needed alterations and extensions in the departments of biochemistry, pharmacology, and physiology. On the ground floor the general biochemical laboratory receives an extension behind the anatomy theatre, and the biochemical research laboratories are also enlarged by taking in the whole ground floor of the pharmacology building. In pharmacology further accommodation for research is procured by dividing the present pharmacology lecture theatre into two laboratories, and this department receives also two extra laboratories on the second floor of the physiology building. A large part of the first, second, and third floors of the building connecting the present Institute of Physiology with the Institute of Anatomy is used

for increasing the accommodation for research in physiology. On the three upper floors there is free communication between the two institutes. From the basement a tunnel leads under Gower-street to connect with the Medical School. Space prevents a more detailed description of the structural features of the new institute, but enough has been said to show that the Rockefeller gift is being expended with wisdom and foresight. The development of a great medical school, it is true, depends less on spacious buildings than on tradition and teaching, but the stimulation of a well-equipped institution must go far towards the establishment and maintenance of those high ideals of medical education which the Rockefeller Foundation seek to propagate. We wish well to the school chosen to help in this great work, and have confidence that University College Medical School will be worthy of its buildings.

THE FECUNDITY OF THE HOOKWORM.

THE comprehensive American investigations into hookworm infection continue. In a recent number of the *American Journal of Hygiene* (Vol. III., No. 2) there appears an interesting article by N. R. Stoll on the relation between the number of eggs voided and the number of worms present in cases of hookworm infection. At first sight such a relation might seem of purely academic interest, but it is really of some practical importance, because it presents in a rough but concrete form some idea of the enormous task involved in the administrative control of hookworm disease. Basing his figures on careful counts of ten characteristic but varied cases, Stoll arrives at the conclusion that each female worm produces an average of 9000 eggs per day. The average number of female hookworms found in these cases was 240. From this one may gather that the average hookworm patient voids over two million hookworm eggs per day. In some cases on certain days the number may even reach five million. The effect of this extraordinary fecundity is modified, however, by the fact that possibly not more than a quarter of these eggs produce viable larvæ, but even this reduction leaves an almost incredible number of potentially infective larvæ. We cannot avoid viewing these figures with some dismay, but there is at least this element of satisfaction—namely, that the thorough cure of each individual patient removes an enormous amount of potential infection.

A NEW REVIEW OF ENDOCRINOLOGY.

WE have recently received the first number of the *Revue Française d'Endocrinologie*,¹ which is published in Paris, and edited by Prof. M. Lucien, of Nancy, and his assistants. In an introductory article Prof. E. Gley summarises the history of the contributions to this branch of medical science which have been made by his compatriots. It is indeed to Claude Bernard that we owe the first clear conception of the process of internal secretion; in 1859 he wrote: "There exists a group of organs resembling glands, but differing from them in that having no excretory ducts their secretions are poured into the blood-stream itself." During the same period the pioneer researches of Brown-Séquard aroused the interest of all physiologists in this subject. Since then there has been a continual output of careful and illuminating research by French investigators; it is only necessary to mention the work of R. Lépine on diabetes, of P. Langlois on adrenalectomy, of Pierre Marie on diseases of the pituitary gland, and the numerous researches of Prof. Gley himself, to demonstrate the importance of the French contributions to our knowledge. Inspired by such a history of national achievement we feel sure that the new journal will contain matter of interest and importance; and the contents of the opening number encourage such a belief. E. Sergent and P. Oury give a detailed account

of a case of acute adrenal insufficiency. L. Cuénot discusses the interesting question of the relation of the internal secretions to heredity; and Dr. Maclaure describes the present possibilities of glandular grafting. In addition there is an epitome of the more important recent medical literature dealing with endocrinology in all its aspects. There is one further point to be noted. In the advertisement columns of the new journal we find announcements, by a dozen or more commercial firms, of products derived from animal tissues, which science at the present day tells us to be either of unknown action or else inert. The multiplication and exploitation of products of this nature has tended to throw disrepute on the whole subject, and at least one important journal devoted to endocrinology edits its advertisement columns even more carefully than its scientific text. It is to be hoped that future numbers may contain less clamorous announcements of expensive extracts of heart-muscle, gastric mucosa, spleen, placenta, lung, lymphatic glands, and other tissues which respectable cooks reject, and food-controllers classify as "offal."

NEUROTROPIC STRAINS OF SPIROCHÆTA PALLIDA.

LONG before the causal organism of syphilis was known, the connexion between general paralysis of the insane and this disease was well recognised. In France, especially under the influence of L. Fournier, it was held that this connexion was a constant one, but in this country the relationship of the two diseases, although recognised as close, was not always conceded to be invariable. With increasingly efficient methods of demonstrating the spirochæte, and especially as a consequence of the introduction of the Wassermann reaction, the causal relationship of syphilis to general paralysis became more and more generally admitted until, with locomotor ataxia, the disease became classified as quaternary or para-syphilis. Nevertheless there have always remained many lacunæ in our knowledge, and peculiarities in these diseases which mark them off from the other manifestations of syphilis. Syphilis of the brain, gummatous in form, may occur and be comparable with the disease in other parenchymatous organs, but the lesions of general paralysis and tabes are peculiar in that they are degenerative instead of formative as are the other syphilitic lesions with which we are acquainted. There is, further, a definite lack of relationship, amounting to an actual dissociation, between the gummatous manifestations of syphilis and these two dreaded quaternary forms. It is, in fact, rare to find any signs of active or past tertiary lesions upon the cadaver of a general paralytic. These peculiarities have marked off para-syphilis as an entity with special features, and the theory gradually took shape, at the hands of many writers, that this particular manifestation of syphilis is due to a type of treponema having special affinities for the central nervous system. As knowledge of the spirochætes has progressed, variations in the character and behaviour of different strains have come to light which suggest that here, as with so many groups of pathogenic organisms—e.g., the pneumococci, meningococci, and spirilla of relapsing fever—we may meet with varieties having different properties and degrees of pathogenicity within the pallida group. An example of two strains having quite different pathogenic abilities for rabbits, and, what is particularly striking, failing to induce in these animals immunity against each other, has been quoted by Fournier and A. Schwartz in a recent number of the *Annales de la Pasteur Institute*.¹ The question of the existence of special neurotropic strains of the syphilitic spirochæte was taken up by C. Levaditi and A. Marie in 1919, and recently, returning to the subject, they claim that similar variations in virulence to those

¹ Paris: Gaston Doin. Bi-monthly. Fr.5.

¹ L. Fournier and A. Schwartz: Pléuralité des tréponèmes. *Annales de l'Institut Pasteur*, vol. xxxvii., No. 2, February, 1923.

which we have just mentioned are associated with such properties in spirochaetes as give them special affinities for the nervous system or the cutaneous and visceral organs, and after infection will tend to cause general paralysis on the one hand or gummatous lesions on the other.² The strains of spirochaetes which these workers consider neurotropic, which have been obtained from cases of general paralysis, cause only mild cutaneous lesions in the rabbit, whereas strains which they regard as dermatotropic tend to give rise to more severe lesions. The validity of many experiments on these lines has been called in question by the discovery of a spontaneous genital disease of rabbits, due to *S. cuniculi*, an organism morphologically indistinguishable from *S. pallida*. The further experiments of Levaditi and Marie show a complete lack of relationship between *S. cuniculi* and *S. pallida* of chances. They do not, however, appear to have absolutely established a like independence between their neurotropic spirochaete and *S. cuniculi*, although they make out a partial claim to have done so; for this reason judgment upon their results must be suspended for the present, although their great interest is not affected. The distinction between the neurotropic and common strains of the syphilitic spirochaete is based upon differences in the results of rabbit inoculations and upon an absence of the capacity of the one variety to render an animal resistant to infection by a strain of the other, several experiments being quoted to illustrate this absence of crossed immunity. The sum of these results and the often striking clinical facts which stand in relationship to them, amongst which we must include the much quoted frequency of parasyphilitic troubles in persons who have contracted their syphilis from the same source, is summarised thus: "Parasyphilis is a separate and distinct type of the specific infection, and is due to strains of treponemata which differ biologically and morphologically from those which are found in the commoner cutaneous, mucous, or visceral manifestations of the disease."

RADIUM IN THE TREATMENT OF CANCER OF THE UTERUS.

THE recent discussion at the Société de Chirurgie, reported in *Paris Médical* for May 5th, showed very plainly that whatever the prospects of radium treatment may be, its present position is very insecure, not merely as a substitute for operative treatment, but even as a supplement thereto. At first sight the time might seem to have come when the claims of radium treatment of cancer of the uterus might be settled, one way or the other. It has, indeed, been given a trial for many years. But so long as the technique of radium treatment is improving, trials in the past cannot be considered as fair, and it is probable that many years must yet pass before the technique has reached that stage of perfection which the operative treatment of cancer of the uterus was so long in attaining. There is yet another reason why we cannot at present form an equitable opinion of the merits of radium in this matter; many years must elapse before its immediate good effects can be proved to be permanent. At the meeting to which we have referred, Dr. Gosset and Dr. Robert Monod discussed the value of radium treatment as a supplement to operative treatment, and Dr. Monod gave an account of 30 cases—most of them bad cases—which he had operated on, supplementing operative with radium treatment. He had only two operative deaths, and he had found that a preliminary course of radium treatment had greatly facilitated the subsequent operation, a less radical hysterectomy than Wertheim's being performed. Microscopic examination of portions of the cervix excised before and after radium treatment had been made, and in 25 cases the second examination showed complete disappearance of the new growth. These two speakers were therefore very favourably impressed

by the combination of radium with operative treatment—a combination which they considered a very real advance. During the discussion which followed they received considerable support, but one speaker, Dr. Faure, gave this combined procedure only his partial approval. He believed that in certain inoperable cases radium treatment could render them operable, but he doubted whether cases already operable derived appreciable benefit from a pre-operative course of radium treatment. Of 33 cases operated on without radium treatment, 14 had ended in recovery. Of 44 cases treated by both radium and operation, 22 had ended in recovery and 22 in relapse. The comparison of these two series was thus hardly in favour of the combined method. Another speaker was not inclined to use radium before operation in operable cases, but he was in favour of post-operative radium treatment. Yet another speaker had given up post-operative radium treatment to return to pre-operative applications of radium. It is evident from the report of this discussion that the problem dealt with is still very far from a final solution.

MEDICINE IN THE ORIENT.

A STRIKING instance of the catholicity of scientific medicine is afforded by the issue of the new *Journal of Oriental Medicine*, the organ of the Oriental Medical Association of Manchuria. This journal, which is edited by Dr. T. Suzuki and Dr. J. Murakami, is to be published quarterly. The first number contains contributions in Chinese, English, and German. Up to the year of the establishment of the Republic in 1911 medicine in China was in a very backward state; when it is remembered that anyone can practise medicine in that country without the possession of a diploma it might be imagined that little or no amelioration of the conditions of things has since taken place. This, however, is not so, for with the Republic a new era in modern preventive medicine commenced, and steady progress has since been maintained. One of the first things which attracted the attention of the new Republic was the success of Western methods of treatment in the suppression of pneumonic plague in Manchuria in contrast with the results of crude and haphazard native methods, and as a result the North Manchurian Plague Prevention Service was established. This consisted of hospitals at Harbin, the commercial centre of North Manchuria and the principal focus of infection in 1911, at Tsitsihar, Sansing, Newchwang, Taheiho, Manchouli, and Lahasusu. In 1913 a presidential mandate was issued authorising the dissection of dead bodies in China, whilst sanction was given for the cremation of cadavers. In the following year a National Medical Association was founded with 30 medical graduates from European, American, Chinese, and Japanese colleges as a nucleus. The membership grew rapidly, and several medical conferences have been held under its auspices. In 1915 a mandate was issued recognising Western medicine as the proper standard of medical practice in China, by which anyone practising medicine in the country will be required to produce a certificate from the police, and since then hospitals and medical colleges have arisen in different parts of the country. A feature of the great progress made has been the increasing coöperation of Chinese and foreigners; missionary institutions invite more and more the assistance of Chinese colleagues, many of the native doctors having received a first-class training abroad. Among other evidences of progress has been the formation of a Terminology Committee to determine medical terms for use throughout China, and the series of resolutions passed at the fourth biennial conference of the National Medical Association of China last year, one of which requested in effect the Central Government to establish a legally qualified medical profession.

In the eighth year of the Republic a Central Epidemic Prevention Bureau was founded by means of the surplus of the fund raised to suppress the

² C. Levaditi and A. Marie; *Pleuralté des virus Syphilitiques*, *ibid.*

epidemic of pneumonic plague then raging in the northern provinces. The bureau has attracted numbers of Chinese medical men interested in public health work, and has furnished doctors for field work during various epidemics of cholera, pneumonic plague, and typhus occurring since its foundation. In 1921 a reorganisation of the bureau took place; an annual maintenance grant was obtained from Maritime Customs revenue, and a Medical International Board of Managers—having at its head Dr. S. H. Chüan, formerly Medical Director-General of the Chinese Army—was created and took over the direction of the bureau. The latter now possesses two departments, one devoted to laboratory work, the other to field service. The first bulletin of the bureau, written by Dr. Edgar T. H. Tsen, head of the laboratory department, printed in English and bearing the title "Notes on Biologic Therapeutics," appeared in January of this year. Dr. Chüan contributes a general foreword, and three other members of the International Board write introductory notes in English, Chinese, and French respectively. The various sections of the bulletin deal with methods of injection, serum reaction, general and particular considerations of vaccines and sera, and diphtheria toxin and toxin-antitoxin. Appendices contain information relating to the field service department, charges for various laboratory examinations, and the prices of biological products. No better evidence of the progress of medicine in the Orient could be desired than these two publications. The difficulties which faced the pioneers of Western medicine during the earliest days of the now well-advanced transitional period are clearly described in a chapter on Medical Education in China, contributed by Dr. George Hadden, of Changsha, to a recent publication of the Student Christian Movement,¹ which is described as a series of open letters on professional subjects from missionary doctors practising abroad addressed to their colleagues at home. Another of these chapters, by Dr. G. Duncan Whyte, of Swatow, contains a useful reminder that "while . . . there is much that is ludicrous and a great deal that is dangerous in (indigenous) Chinese medicine, yet many of the fundamental ideas that actuate the native doctor are very sound, and some of his drugs are most useful."

ÆTIOLOGY AND PROGNOSIS OF CIRRHOSIS OF THE LIVER.

AN important monograph has recently been published by Prof. S. Laache,² of the University of Christiania, on cirrhosis of the liver. His material consists of 44 cases, 34 of which came to necropsy. During the 32 years in which these cases occurred, 16,000 patients were treated in Prof. Laache's medical wards, and he accordingly estimates the incidence of cirrhosis of the liver among in-patients in medical wards at 0.28 per cent. This ratio is surprisingly low. With regard to the ætiology, there was a history of alcoholism only in 39 per cent., and all the patients giving a history of alcoholism were males. Not one of the 14 women suffering from cirrhosis of the liver confessed to alcoholism, and the questions therefore arise: (1) Are men more truthful than women when questioned on this rather tender subject? (2) Do men drink much more alcohol than women? (3) Is the male liver more susceptible to alcohol than the female liver? These are questions to which Prof. Laache has found no final answer, and it is significant that in as many as 12 of the 14 cases of cirrhosis of the liver in women its cause remained obscure. It was also obscure in many of the male cases, and as Prof. Laache points out, only a minute fraction of bibulous males suffer from cirrhosis of the liver, and the development of this disease must therefore probably depend on a certain predisposi-

tion, without which alcohol cannot provoke cirrhosis. This point is well worth bearing in mind when the present decline in the incidence of cirrhosis of the liver is correlated with a real or supposed decline in the consumption of alcoholic liquors. With regard to prognosis, Prof. Laache confirms the old observation that ascites is an ominous sign. It was present in 81 per cent. of the 26 cases of atrophic cirrhosis coming to necropsy, and the duration of life after the development of ascites was, on the average, only 10 to 12 months for men and only five to six months for women. The longest span of life after the development of ascites was only 30 months. Statistics such as these are not encouraging, and they suggest that cirrhosis of the liver with ascites is a hopelessly terminal stage, or that the treatment hitherto advocated is hopelessly inadequate. Paracentesis abdominis is but a symptomatic remedy, and in Prof. Laache's experience it may sometimes do more harm than good; in one of his cases hæmatemesis followed this operation. A drug which he has found remarkably effective in some cases is calomel, and he is also in favour of a salt-free, lacto-vegetarian diet. But in view of the ultimate results in the majority of his cases there would seem to be ample scope for therapeutic reforms in this field.

THE PSYCHOLOGY OF EPILEPSY.

ON May 24th, under the auspices of the University of London, Dr. E. T. Wiersma, Professor at the Psychiatric and Neurologic Clinic at Groningen, delivered at the Royal Society of Medicine an Anglo-Batavian lecture on the Psychology of Epilepsy. He gave an admirable summary of his researches into the perceptual processes, the fluctuations of attention, and the reaction times in epileptics. Experiments were made with respect to the "just noticeable" perceptions of sound and light in a number of epileptics, and he found that the results were most marked when fits were imminent, and were reduced when the patient was under the influence of bromide. He also exhibited diagrams of statistics relating to the mental and moral characteristics of epileptics as compared with normal people, and gave reasoned arguments for the conclusions to which he had arrived. It is noteworthy that exact psychological methods are being pursued by psychiatrists in the difficult problems of epilepsy and the psychoses, and no doubt much may be achieved in this direction towards a further elucidation of their origin. Dr. Wiersma traced the relationship of epilepsy to normal sleep; in the last-named condition some persons had a tendency to muscular startings before slumber. This habit, indeed, was frequently to be observed in children and animals. Hypnagogic hallucinations and nocturnal fears bore a close resemblance to epileptic equivalents, and similar phenomena were to be seen in disturbances of consciousness from other causes such as chloroform anaesthesia and alcoholism, which Dr. Wiersma regarded as links in the chain of the stage from epilepsy to the normal. He placed insistence on two phenomena which occurred in preoccupied or fatigued individuals and which appeared in aggravated form in epileptics—viz., "fausse reconnaissance" or the consciousness of having experienced present perceptions in the past, and "depersonalisation" or the failure to recognise actual perceptions with consequent disorientating effects. These might, no doubt, be assumed to arise through transient dissociation. Discussing epileptic characteristics, Dr. Wiersma endeavoured to establish a connexion with normal traits, and gave an account of an interesting series of percentage figures compiled from an investigation of 2523 normal persons. This was conducted by means of a list of 90 questions forwarded to Dutch practitioners, who were asked to send replies with respect to the mental "make up" of normal individuals well known to them. The questions included inquiries into capacity for comprehension, practical applications of common sense, breadth of mental vision, originality of ideas,

¹ Medical Practice in Africa and the East. Edited by Hugh Martin, M.A., and H. H. Weir, M.A., M.B., with an introduction by Stephen Paget, F.R.C.S. London: Student Christian Movement. 1923. 4s.

² Norsk Magazin for Lægevidenskaben, April, 1923.

verbosity, inclination to repetition, perceptive acuity, memory, mental reserve, wit, stubbornness, irritability, moodiness, self-satisfaction, conflict between thought and action, and so on. From this compilation Dr. Wiersma had divided the individuals into two main groups—viz., normally active persons and the absent-minded—the latter being prone to be inactive, losing grip on the outer world and its restraining influence on temptation, ill-at-ease with their fellow-men, and wandering in their thoughts. Dr. Wiersma's conclusion is that the absent-minded class represents transition between the normal and epileptic sections of the community. The fundamental nature of epilepsy he regards as due to an inherent failure adequately to assimilate impressions from the external world and holds that the convulsions, equivalents, and mental and moral characteristics associated with epilepsy are secondary and dependent phenomena.

THE MAUDSLEY LECTURE.

WHEN the Maudsley Lectureship was instituted in 1919 it was laid down that while the lecturer must have made contributions of well-recognised importance and value bearing on the knowledge of mind and its disorders, he might be of any nationality or of either sex. Sir James Crichton-Browne, who delivered the first lecture, dealt with the modern combination of laboratory and clinical work and the necessity of founding mental hospitals, and his lecture included a critical conspectus of psycho-analysis and psychotherapy. Last year Sir Maurice Craig took as his subject *Some Aspects of Education in Relation to Mental Disorder*, his key-note being Maudsley's remark that "there are not many natures predisposed to insanity but might be saved from it were they placed in their earliest days in exactly those circumstances and subject to exactly that training most fitted to counteract that innate infirmity." This year a distinguished visitor from the Dominions, Prof. C. K. Clarke of Toronto, was invited to deliver the lecture, of which we give an abstract on a later page of this issue. Prof. Clarke dealt as was natural with the special needs and conditions of a developing country, starting from the unfortunate fact that the host of immigrants drifting from the Old World contain an undue proportion of defectives and mentally diseased persons. He described the work of the Canadian National Committee for Mental Training which he directs, frankly admitting that its first function is to educate people to a knowledge of the importance of having well educated psychiatrists abroad in the community—with the idea of keeping prevention of mental disorder before the public mind, and its second to scan school populations with skilled eye in the hope of forestalling the thousand-and-one tragedies seen to-day. Dr. J. G. Soutar, in proposing the vote of thanks to Prof. Clarke, welcomed his address for its helpfulness and hopefulness. The lecturer's enthusiasm had driven without stampeding him, and it might well be true that Canada could face psychological problems with greater freedom, being less hampered by tradition and entrenched in pre-conceptions than the mother country.

PRESERVATIVES IN FOOD.

FRESH point has been given to the need for further control of preservatives added to our daily food by the appearance of Dr. W. J. Howarth's report for the year 1922 on the health of the City of London. During that year nearly 1000 samples of food or drugs were submitted to the public analyst for examination, and of these more than 11 per cent. were found to be adulterated, the substances being very various, as the following list shows: Coffee essence, milk, borax, butter, British wines, margarine, tinned spinach, honey, gelatin, lemon curd, cider, Gregory powder, whisky, preserved cream, sauce, mustard, rum, cream, table jelly. The list shows a wide field of sophistication, although Dr. Howarth believes it to be not greater in the City area than elsewhere, his method of group-sampling tending to give higher figures than

random sampling would. However, he regarded the situation as disquieting enough, as we have recently pointed out,¹ and the position fully justifies the plea of a proposed deputation to the Minister of Health, asking for the speedy introduction of legislation to notify and limit the presence of preservatives in food. This deputation, which included representatives of nine societies and a number of medical officers of health and others who have taken special interest in the matter of pure food, received the gratifying assurance that a Committee on the Use of Preservatives was in course of appointment. It is unfortunate that the only official action to be taken on the recommendations of the Departmental Committee of 1890 has been the issue of the Milk and Cream Regulations (1912 and 1917), prohibiting entirely the addition of preservatives to milk and limiting the amount of boric acid or hydrogen peroxide which may be added to cream, making obligatory an announcement of their presence on the label, and a further prohibition under the Foreign Meat Regulations of the importation of certain meat foods containing preservatives. But outside these there is a wide field for action. Laxity on the part of local authorities cannot, however, be entirely due to lack of powers, for the 5 administrative counties and 13 county boroughs, in which during recent years no sampling whatever has been done for the discovery of preservatives, have, as a matter of fact, possessed during that period full powers under the Milk and Cream Regulations. It is good fortune that just at this moment should appear a new edition (the seventh) of Bell's "Sale of Food and Drugs Acts"² which Mr. C. F. Lloyd has endeavoured to bring completely up to date, although, as he says, the law relating thereto has fallen into considerable confusion. The chemical notes of Mr. R. A. Robinson in the same volume have also been revised and enlarged.

A DIPLOMA IN BACTERIOLOGY.

BACTERIOLOGY is coming to occupy a large place not only in medicine and in public health but in many of the other arts and sciences. This theme formed the text of Sir Frederick Andrewes's address when opening last week the new bacteriological laboratories at Newcastle-upon-Tyne. It is significant that during the same week, at the annual meeting of the Court of the University of Manchester, approval was given to the institution of a special diploma in bacteriology. This is the first diploma in the subject instituted in this country, and the courses of instruction, which candidates will be required to attend before presenting themselves for examination, are designed to supply a thorough training in the general principles of the subject, together with advanced courses in one or more special branches. Graduates in medicine and in science of any approved university may enter for the course, and the syllabus has been designed to meet the requirements of medical graduates who wish to qualify for bacteriological posts, or to obtain a special knowledge of medical bacteriology, and also of graduates in science who desire to take up some branch of bacteriological work. The diploma will be awarded to candidates who have, after graduation in science or in medicine, attended the prescribed courses in the department of bacteriology and preventive medicine, under the general direction of Prof. W. W. C. Topley, over at least one academic year. The course of study comprises (a) courses of instruction in general bacteriology, including the morphology and physiology of bacteria and bacterial classification, the history of bacteriology, quantitative methods of bacteriological investigations, and elementary bacteriological chemistry; (b) special courses of instruction in two or more of the following subjects must also be taken: (1) bacteriological analysis of water, milk, food, &c.; (2) advanced bacteriological chemistry; (3) biometry; (4) parasitism, infection, and resistance; (5) epidemiology; (6) comparative pathology. The examination will consist of written papers on the general subjects

¹ THE LANCET, April 21st. ² Butterworth and Co. 1923. 15s.

and on each of the special subjects selected, together with oral and practical examinations. A thesis to include a report on personal observations carried out in the laboratory must also be submitted. The reason influencing the decision of the University of Manchester to institute a diploma is that the increased importance of bacteriology in human and veterinary medicine, in agriculture, and in other branches of applied science makes it desirable that an adequate course of training should be available for those who wish to undertake bacteriological work of any kind. It is impossible to include in the ordinary medical curriculum more than the rudiments of this subject, and practically no provision is at present made for non-medical students, such as those studying biochemistry and kindred subjects, to whom a knowledge of bacteriological methods would often be of the greatest service. The new diploma may well meet the needs of a number of post-graduate students for whom no adequate provision has hitherto been made.

THE recent list of honours contains the name of Sir Thomas Horder, who becomes a baronet, and of Dr. Gould May, who receives a knighthood. We congratulate the recipients of these honours.

WE regret to announce the death of the veteran surgeon, John Chiene, Emeritus Professor of Surgery in the University of Edinburgh and consulting surgeon to the Edinburgh Royal Infirmary.

THE second part of the Registrar-General's Statistical Review of England and Wales for the year 1921 has now appeared. It will be remembered that in the new annual series a change in format was made from foolscap folio to royal octavo, and the statistical matter was regrouped into medical statistics and civil statistics, each being issued as soon as ready. Part II. of the tables, which now appears, deals with civil statistics (H.M. Stationery Office. 5s.). It contains those tables in the old series with a general demographic interest, along with the numbers of parliamentary and local government electors, recent census populations, and an appendix showing housing conditions and pauperism.

WE have received a copy of the Short History of St. Bartholomew's Hospital, 1123-1923, prepared as a gift-book for the delegates to the 800th anniversary of the hospital which is being celebrated from June 5th to 9th. In this beautiful book, which is beyond praise for its substance and manner, Sir D'Arcy Power deals with the Past and Present, the story being told largely in the language of the original records, and Mr. H. J. Waring with the Future. There are 52 illustrations and plans, several of them in colour. Articles have been incorporated on the Pathological Institute by Sir Frederick Andrewes, and on the Dispensary by Mr. J. L. Moore. The plans for the future have been drawn by Mr. T. A. Lodge. Much help in the preparation has been given by Mr. Geoffrey Keynes, from whom copies can be obtained, on application at the hospital, for 11s., including postage.

FELLOWSHIP OF MEDICINE.—A two weeks' refresher course in general medicine and surgery will be given at the North-East London Post-Graduate College (Prince of Wales's General Hospital), Tottenham, from June 11th to 23rd inclusive. The course will include demonstrations in clinical and laboratory methods with special demonstrations each Saturday at the North-Eastern Fever Hospital and the L.C.C. Mental Hospital respectively. A clinical lecture will be given every day at 4.30 P.M. A course of eight practical lecture-demonstrations on gastro-intestinal diseases of children will be given by Sir William Bayliss, Dr. Bernard Myers, and Mr. E. T. C. Milligan at the "Children's Clinic," Western General Dispensary, from June 11th to July 5th. In addition to other special courses announced last week, Dr. Gustave Monod will give a short course of clinical demonstrations (in English) on practical hydrology at the Thermal Hospital in Vichy, beginning on June 11th. Further particulars from the Secretary to the Fellowship, 1, Wimpole-street, London, W. 1.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXII.

THE TREATMENT OF RINGWORM.

THE subject of ringworm may best be dealt with under four headings: 1. Ringworm of the hairy regions, the scalp in children, and the beard region of men. 2. Ringworm of the nails. 3. Ringworm of the glabrous skin of the body and limbs generally. 4. The obstinate form of ringworm known as "Dhobi itch," especially as it affects the hands and feet.

Ringworm of Hairy Regions.

No treatment is efficacious that does not secure the complete shedding of the diseased hair, since no drug at present known is capable of penetrating the hair shaft in sufficient strength to destroy the fungus. Without going into detail as to the cultural varieties of ringworm that affect the hairy regions, it is important to separate two clinical varieties which, owing to their different effects on the skin, need different forms of treatment. The common clinical varieties all produce only a slight degree of inflammation, insufficient to cause shedding of the hair, and are associated with only slight redness, scaling, perhaps a little indolent pustulation and breaking of the hair so that it cannot be extracted with forceps. For these forms it is necessary to use artificial means to cause the hair to loosen and be shed in its entirety from the follicle. Though there are many applications that are capable of doing this in an uncertain proportion of cases, only two, the X rays and the croton oil treatment, may be relied upon in every case.

X Rays.—Where X ray treatment by an expert is obtainable it is the most satisfactory method, being cleanly, painless, regular in its action, and almost completely free from risk, but it cannot be urged too strongly that there is only a small margin of safety between insufficient radiation followed by incomplete fall of the hair and excessive radiation which may cause permanent baldness and even a severe dermatitis. This method should therefore be used only by medical men thoroughly trained in the use of X rays for this purpose. It should also be emphasised that the X rays have no deleterious effect on the fungus and are to be used simply as a means of converting hairy into hairless skin. Consequently during the shedding of the hair and for a period of four weeks afterwards the scalp should be kept constantly under treatment with a fungicide "guard" ointment, the best being, in my hands: *Acidi benzoici*, gr. xxv.; *acidi salicylici*, gr. xv.; *adipis lanæ*, 3ss.; *paraffinum molle*, ad 3i.

Two further points require emphasis. First, I am convinced after bitter experience that when ringworm is once established in the scalp it is wise to depilate the whole scalp by the overlap method of Adamson and not to attempt to treat infected areas only; otherwise the disease may crop up later on in other parts of the scalp and treatment then becomes much more prolonged and difficult. Secondly, it should be remembered that since X rays do not kill ringworm the falling hairs are likely to spread the infection and the patient should therefore be isolated.

Croton Oil.—Should X rays be unobtainable, shedding of the hair may be caused with certainty by means of croton oil treatment. Parents should be warned that this is a painful treatment. In this method one may use either the actual croton oil in very small quantities, painting a single drop over each patch, or one may use somewhat more freely an ointment consisting of one drachm of croton oil in an ounce of lard and rubbing this in gently. The finger used for rubbing in the ointment should be covered with a rubber stall, otherwise there is great risk of causing a whitlow on the finger. This treatment should be

carried out once a day and before rubbing in any fresh oil the parts should be thoroughly bathed with very hot water, any pustules present being opened with a sterile needle and the contents bathed out. After a variable number of days either a severe pustular folliculitis will be produced, or the whole area will swell up into a sort of oedematous cushion. In either case the hair will be so far loosened that it may be drawn entire with its swollen rootsheath. The case must be carefully watched, since if the process is carried too far, the formation of an abscess or sloughing of the skin results. Any appearance of whiteness of the treated skin is the earliest indication of a tendency to slough. In fortunate cases the whole of the affected hair will be shed together, but more frequently a few diseased hairs remain tightly set in the follicle, when each individual hair must be treated separately. A number 16 sewing needle is bent in a spirit flame to an angle of 45° , the angle being placed at a full quarter of an inch from the eye end. The pointed end is set in a needle holder or driven into a stick of soft wood. The eye end is dipped into neat croton oil and the affected follicle is gently catheterised therewith. The oval end of the needle is fine enough to find its way into the follicle, but not sharp enough to pierce the side unless undue pressure is used. The eye performs a useful function in carrying a charge of croton oil which becomes rubbed off as the needle descends into the follicle. The operation demands a considerable degree of skill. During the whole of the croton oil treatment the rest of the head should be kept thoroughly dressed with a "guard" ointment. The treatment is not entirely free from risk of permanent loss of hair, but this never occurs over large areas unless the oil is grossly over-used; on the other hand, it has the disadvantage that needling is almost always necessary to finish the case, and this demands expert skill.

Various Ointments.—Instead of the croton oil application an ointment consisting of equal parts of sodium chloride and vaseline may be used. This is rubbed in thoroughly once a day, after bathing the head with very hot water. The treatment is painful, perhaps even more so than the croton oil, but it is a little less dangerous. It is, however, much less certain to produce the desired fall of hair and sometimes sets up a spreading superficial dermatitis difficult to control and useless in the cure of the disease. Numerous other formulæ have been recommended. Of these, two have given me a reasonable proportion of successes. *Acidi salicylici gr. xlv., ung. hydrargyri nitratis ad ʒi.* rubbed in twice a day and washed out once a week will in favourable cases cause a non-suppurative, painless shedding of the hair resembling alopecia areata; in other cases, unfortunately, it causes a deeply pitting folliculitis and must be given up at once.

The second ointment is a modification of that already mentioned, so increased in strength as to have in some cases a depilating action: *Acidi benzoici, ʒi.; acidi salicylici, ʒss.; adipis lanæ, ʒiv.; paraffinum molle ad ʒi.* This ointment should be rubbed in twice a day; it causes some smarting to the child and may set up a temporary coryza in the person rubbing it in; I have never seen ill-effects from its use, but it is sometimes quite inefficacious.

Kerion Celsi.—The second type of ringworm of the hairy skin is that associated with intense oedematous and suppurative folliculitis, and is generally if not invariably due to the ectothrix fungus derived from domestic animals. It is known in this country as kerion celsi and on the continent as trichophytosis profunda. This type of the disease is self-curative since the inflammation loosens all the affected hair. All that is necessary is to draw these infected hairs from the inflamed follicles and then foment frequently with a solution of mercuric chloride (1 in 4000), keeping the rest of the scalp under a "guard" ointment.

The treatment of ringworm of the beard region is similar to that of the scalp, but the croton oil and sodium chloride treatments should not be used.

Ringworm of the Nails.

This disease is far more common than is generally recognised owing to the difficulty of demonstrating the fungus. Many methods of treatment have been recommended; the following method seems to me infinitely superior to the rest. The patient should be put under a general anæsthetic and all diseased nails gently but entirely removed, particular care being taken to remove any fragments that break off under the posterior nail fold. If, as is commonly the case, the nail bed shows extensive hyperkeratosis this should be gently scraped down with blade of a pair of scissors. After any bleeding has been stopped the whole nail bed should be dressed with *acidi salicylici, gr. xx.; ung. chrysarobini ad ʒi.*, and some of the ointment should be worked as far as possible beneath the posterior nail fold. Pain is not, as a rule, great, but if necessary an opiate should be given for the first night. After-treatment consists in dressing the nail bed daily for at least four weeks with the same ointment. Should any nail relapse the treatment should be repeated, but this is not common.

Ringworm of the Glabrous Skin other than that of the Hands and Feet.

This form offers little difficulty as a rule. If seen early it may be painted with equal parts of tr. iodi and liq. iodi fort., or dressed with the mild benzoic and salicylic ointment given above or with ung. chrysarobini. If the ringworm is of the highly inflammatory kerion variety I think it best to bandage it up with ung. chrysarobini.

Dhobi Itch of the Hands and Feet.

Owing partly to the immense thickness of the horny layer in these situations and partly to the resistant nature of the fungus this form is often desperately refractory to treatment. The nails are often infected and, if so, must be treated thoroughly or relapse is certain. Gloves, socks, and shoes must be disinfected as the fungus certainly resides in the two former and probably in the latter. The bath should also be scrubbed down with a disinfectant; Turkish baths should be avoided. I have had the highest proportion of permanent cures from the following treatment: In the morning after a bath all flaps of frayed horny layer are trimmed away and the roofs of any vesicles removed. The areas of infection are then well rubbed with a cotton-wool swab saturated with 10 per cent. solution of chrysarobin in equal parts of acetone and methylated spirit. This solution dries in a few moments; a pair of cheap cotton socks under the regular socks protects these from the chrysarobin. In the evening as much as possible of the chrysarobin is washed off with soap and water in order to avoid staining the bedclothes, and the 5 per cent. benzoic acid and 3 per cent. salicylic acid ointment is rubbed well in. Next morning this is washed off and the chrysarobin reapplied. This should be continued for four weeks unless chrysarobin erythema supervenes, when the solution must be stopped for a time and the ointment used day and night.

It is advisable in long-standing cases, which are common owing to mistakes of diagnosis, to continue with some alcoholic antiseptic for a long period after apparent cure. The formulæ which have served me best for this purpose are: (1) *Hydrargyri perchloridi, gr. ii.; acidi salicylici, gr. xl.; sp. vini methylati (60 per cent.) ad ʒi.* (2) *Cupri nitratis, gr. xl.; acetone and sp. vini methylati, aa ʒii.*

Adamson has had good results by first painting with 3 per cent. solution of nitrate of silver and then when this has dried immediately painting with tincture of iodine. In my experience this method clears up symptoms quickly but relapse is frequent. Some American writers claim success from the soaking of the feet in a solution of potass. perman. (1 in 2000 to 1 in 500), but I have never been able to establish a lasting cure with this.

ARTHUR WHITFIELD, M.D., F.R.C.P.,
Physician to the Skin Department,
King's College Hospital.

Special Articles.

BRITISH EMPIRE CANCER CAMPAIGN: AN APPEAL.

CANCER, in spite of the advances which have been made both in diagnosis and treatment, is still the most common single cause of death in persons over 30 years of age and is becoming so in an increasing degree. During 1920, in England and Wales, nearly 43,000 persons over 30 and upwards died of cancer. In 1921, the last year for which the Registrar-General's figures are available, the corresponding number was 45,328. During that year, one in every seven deaths from the age of 30 onwards was caused by cancer.

We are still ignorant both of the causation and cure of cancer. Many other diseases have yielded their secrets to patient investigation and there is no reason to suppose that the problem of cancer will not eventually be solved. Yet thousands of suffering men and women, and those who suffer with them, are asking how long they must wait and if there is nothing that can be done to hasten a discovery which will bring relief to those whose outlook is to-day so hopeless.

The answer to this question is clear. The first step towards finding the cure of cancer is to discover its cause. To find that cause no effort must be spared. Every possible line of research must be diligently explored. More men must be set free to devote themselves wholly to research, and their work must not be hampered or prevented by want of money.

Much research work is being carried on and considerable advances have been made in the technique of operations designed to remove the disease in its early stages or retard its progress in more advanced cases. All honour is due to those who have done and are doing the work, but a vast amount still remains to be done. Impressed by the need for immediate action we have joined together to found a movement which will coördinate and support research on cancer throughout the British Empire.

This new concerted movement will be called the British Empire Cancer Campaign. It will be governed and directed by an Executive Council, the members of which will act as chairmen of small working committees each dealing with a separate aspect of the cancer problem.

Medicine, surgery, human pathology, chemistry, physics, radiology, animal and plant pathology, hygiene, and vital statistics will all be represented by committees whose work will be coördinated by the Executive Council acting, in fact, as a central clearing house. The Council is anxious to make it clear from the outset that it has no wish to interfere with the work already being carried out. Individuals and institutions now working on the cancer problem will be helped and encouraged and where practicable financially assisted.

In this way investigation can be carried out simultaneously along many lines and the results of these inquiries will be brought into the common stock of knowledge. A discovery in any one branch will be made known to all, and may lead to discoveries in other branches. It is in this coördination of effort that our most confident hopes are placed.

No one can say with certainty that we shall succeed in our quest to find the cause of cancer, but a movement so broad must inevitably advance the knowledge which we have of this disease and every step forward brings us nearer to our goal.

The British Red Cross Society has placed its organisation and machinery at the disposal of the Council of the Campaign, and a generous donor has already given a sum sufficient to cover the preliminary expenses of this appeal. All future contributions will therefore be expended in encouraging, assisting, organising, and administering systematic research and treatment on a scale that has hitherto been impossible.

To do this a large sum of money will be needed and we appeal with confidence to the British public in the United Kingdom and in the Dominions and Colonies overseas. During the war we had ample evidence of the capacity of this Empire for united and intensive effort, and in no field was it more effectively shown than in the relief of suffering and the prevention of disease. Is it too much to hope that the same spirit will animate our people when they are called upon to wage war against an enemy that is in their very midst? We plead with all earnestness that we may be given the means wherewithal to carry through the task which we have set ourselves to accomplish and thus to bring relief and hope to those whose lives are now darkened by suffering and despair.

The fund will be administered under the direction of a strong Finance Committee. Cheques should be made payable to the British Red Cross Society, crossed "British Empire Cancer Campaign" and sent to the Hon. Sir Arthur Stanley, G.B.E., C.B., 19, Berkeley-street, London, W.1, or to Lloyds Bank, Ltd., 71, Lombard-street, or to any of their branches or agencies at home or abroad.

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DAWSON OF PENN.
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BERNARD SPILSBURY.
ARTHUR STANLEY.
WILLIAM WILCOX.

All communications should be addressed to the hon. secretary, Godfrey Locker Lampson, Esq., M.P., 19, Berkeley-street, W.1, May 30th, 1923.

THE CONSTANTINOPLE BOARD OF HEALTH.

BY F. G. CLEMOW, C.M.G., M.D.,

FORMER BRITISH DELEGATE TO THE BOARD AND PHYSICIAN TO
H.M. EMBASSY, CONSTANTINOPLE.

PART II.*—THE WORK OF THE BOARD.

THE work done by the Constantinople Board of Health may best be understood by grouping it under three main headings: (1) the Mediterranean and Black Sea sanitary service; (2) the Red Sea sanitary service, the Mecca Pilgrimage, and the Hedjaz Railway; (3) the Turco-Persian Frontier sanitary service and the Shiah pilgrimage and transport of dead bodies. This division of the work was indeed formally recognised, both administratively and financially, almost from the first; and in the Board's balance-sheets the receipts and expenditure of each of the three "services" were, till the end, set forth separately. The ideal aimed at was that each "service" should, as far as possible, be independent and financially self-supporting; and in the earlier years the finances of the three were not only kept separately, but it was even laid down that a deficit in one was not to be covered by a surplus in either of the others, but was to be borne by the Turkish Government. In later decades, however, the "fusion" of the three services was formally admitted, and though the figures for each continued to appear separately, the totals were added together and a deficit or surplus established in the Turkish sanitary service as a whole.

In each of the three services the Board administered a series of lazarets, disinfecting stations, and sanitary offices. The latter existed at practically every port of any size around the coasts of the Turkish Empire and at suitable places along the land frontiers. The maritime offices were charged with the interrogation of ships, the examination of bills of health, the collection of sanitary dues, the granting of sanitary visás, and the reporting to the central administration of any event of sanitary importance,

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such as the occurrence of plague or cholera on a ship or the outbreak of infectious disease in the port or its neighbourhood. In like manner the lazarets and disinfecting stations were placed at suitable intervals along the coasts or on the frontiers.

The Mediterranean and Black Sea Sanitary Service.

There were five lazarets, of different size, in this service—those of Sinope, on the northern shores of Asia Minor; Kavak (or Monastyr-Aghzi), near the northern end of the Bosphorus; Touzla, on the Sea of Marmora; Clazomene, near to Smyrna; and Beirût, on the Syrian coast. In addition there were small disinfecting stations, well furnished with steam stoves, at Jaffa and Rhodes. Of these only the first four now remain to Turkey. In former years there was something in the nature of a lazaret at Nagara, on the Dardanelles, but for many decades it had practically ceased to exist. It will be observed that, while the coasts of Asia Minor, Syria, Palestine, and the Straits (Bosphorus, Sea of Marmora, and Dardanelles) were sufficiently well supplied with lazarets and disinfecting stations, there were none on the shores of European Turkey—either on the Ægean or Adriatic side—nor on those of African Turkey (Tripoli and the Cyrenaica).

The lazaret of Sinope was intended for the reception of pilgrim ships or other large ships subject to measures coming from any port in the Black Sea, and destined for Constantinople or any port south of the Straits. It was a large and straggling establishment, but possessed a good modern disinfecting block, provided with three stoves. When visited in 1908 the rest of the buildings were in bad condition; during the war it was occupied by Turkish troops and this has, I understand, all but completed its ruin. It was formerly capable of lodging about 1200 persons in quarantine.

The lazaret of Kavak was intended to be only a secondary establishment, a sort of "succursale" of Sinope. It has a fairly good disinfecting pavilion, but can only lodge some 250 persons at a time. The question of transferring this lazaret to a better site in the Bosphorus, where a large one could be built to replace the two lazarets of Sinope and Kavak and deal with all arrivals from the north, has for some time been under consideration. The protection of the "Straits" by means of such an establishment or by other means is, indeed, of primary importance to the other countries of Europe. The Straits and the Suez Canal constitute two great waterways by which Europe is constantly threatened with the introduction of epidemic diseases from the East. In the past the majority of ships from the Black Sea subject to measures, and especially of pilgrim ships, came from the Russian ports of that sea. In later decades they brought large numbers of passengers and pilgrims not only from all parts of Russia—including European Russia, the Caucasus, Central Asia, and Siberia—but also from other Asiatic countries. The development of railways in these regions led to a vast increase in the movement of pilgrims and traders by this route of the Black Sea and the Straits. In European Russia there was a fairly complete network of railways; these were linked up with the Trans-Siberian and Transcaspiian lines. The latter had extensions to Samarkand, and the provinces of Semipalatinsk, Semiretchinsk, and Ferghana. On the west of the Caspian it was continued in the Transcaucasian railway from Baku to Batoum, with an important branch from Tiflis to Julfa and Tabriz in Persia. Already these lines are linked directly or indirectly with the Bagdad railway, the Hedjaz railway, and the lines of Asia Minor. If the movement on these various routes was great in the past, it will unquestionably be still greater in future.

The Touzla lazaret, situated on the Gulf of Ismid (Sea of Marmora), is a small establishment, and should perhaps be grouped with the disinfecting stations rather than with the lazarets. It has an excellent disinfecting pavilion, a small hospital and laboratory,

but no houses for lodging persons subject to detention in quarantine.

The Clazomene lazaret, on the island of that name in the Gulf of Smyrna, was a fairly large and good lazaret, possessing a good disinfecting block, hospitals, and houses for lodging some 2000 persons at a time. It is reported to have suffered much damage during the war.

Finally, identical statements may be made in regard to the Beirût lazaret, save that here there was accommodation for some 1500 persons only. The two disinfecting stations of Jaffa and Rhodes were each provided with a quite excellent disinfecting pavilion, but with nothing else. To complete this brief sketch of the Mediterranean and Black Sea sanitary service, it must be added that there were as many as 84 sanitary offices, "principal" and "sub-ordinate," in different Turkish ports; of these only 31 were on territory that now remains Turkish.

In a concluding article the financial arrangement of the Board and the sanitary organisation for the future will be considered.

(To be concluded.)

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Early Treatment of Œsophageal Injuries by Bougie.

In a paper recently read before the Vienna Medical Society Dr. Salzer discussed the best methods of treating the condition, frequently found in children, of Œsophageal strictures produced by swallowing caustic substances. Three years ago he had reported to the same society that his routine treatment was to apply a bougie very early after the injury, and he had then shown a dozen cases. He had since had 24 more cases of such injuries under observation. He used to apply a bougie as soon as the acute symptoms had subsided—i.e., on the third to sixth day after the injury—not, as had hitherto been customary, after a few weeks, when cicatricial stenosis was already well established. Of the 24 cases newly reported 21 were cured and 2 died before treatment could be commenced; one boy, aged 3 years, died on the seventh day after four treatments, post-mortem examination revealing pneumonia, but no perforation of Œsophagus or stomach. Thus, out of 37 cases observed, 33 were cured, and 1 died during treatment, but not owing to it. In Hungary, Dr. Bokag and Dr. Erdelyi had treated 116 children on the same principle, with excellent results. Only 5 died, but not directly owing to the treatment. In adults the same principle of very early application of a bougie had also been used in the Vienna surgical clinics; the four cases seen were all cured. Dr. Salzer strongly urged practitioners to resort very early to this safe and trustworthy method.

New Professor of Pathological Anatomy at Vienna.

The chair of pathological anatomy in the University of Vienna, which has been vacant for half a year, has now been filled by the appointment of Prof. R. Maresch, who is a pupil of Paltauf, and has held, amongst other posts, that of prosecutor of the City of Vienna Hospital. Prof. Maresch has a wide reputation as a teacher and research worker, his main interests being bacteriology and tumours; he will take up his duties during the summer.

Treatment of Severe Hæmorrhage by Blood Transfusion.

Prof. Victor Blum recently showed to the Surgical Society of Vienna a patient, aged 65, who had suffered from prostatic hypertrophy. He had been passing about 6 litres (about 12 pints) of urine per day, and had suffered from severe thirst; a diagnosis of diabetes had been made elsewhere, and treatment instituted accordingly. Only after some time had elapsed was the condition properly diagnosed as severe insufficiency of the kidneys, over-distension of the bladder, and prostatic hypertrophy. Operation

consisted in suprapubic prostatectomy after slow evacuation of the bladder. Severe hæmorrhage gave much trouble, but was twice controlled; on the thirteenth day blood again appeared in the urine, in such profusion that the patient became quite pulseless. All known methods of stopping the hæmorrhage were tried, and finally resort was had to blood transfusion by means of the Ohleckers apparatus. The patient's son served as donor, 750 c.cm. being transfused with excellent results. The pulse returned, the patient rapidly regained normal colour, and the bleeding stopped at once. Except for a severe rigor after half an hour, with a sudden rise of temperature, the patient made an uninterrupted recovery, and is now practically cured of all his troubles. Prof. Blum strongly advocates the use of transfusion for all cases of severe bleeding in surgical and non-surgical cases, and points out that whilst in Central Europe this method is not much used, it is quite common in the United States, especially as a preparatory measure for prostatectomy in weak cachectic old men with renal insufficiency, in cases of anæmia due to acute nephritis, and in treatment of urosepsis and of puerperal sepsis. In the discussion following the demonstration, Prof. A. Eiselsberg, in whose clinic the apparatus is working, offered its use to any member of the profession requiring it, together with the help of trained men capable of handling the rather intricate mechanism.

Statistics of Population in Leading European States.

An interesting review of problems of population was recently published by the Austrian Statistical Board. From the figures given the population of the chief western countries at the beginning of the nineteenth century was as follows: France (comprising about the same territory as at present) 27 millions; England, about 16 millions; Germany, about 22 millions; Italy, 18 millions. After the Napoleonic wars—i.e., in 1816—France had a population of 29½ millions and Germany 25 millions. Fifteen years later France was left behind with 36·8 against Germany's 42·7 millions. In 1913 the proportion was Germany 67, France 39·8 millions. At present Germany, although she has lost, by the terms of the Peace Treaty, over seven millions of German-speaking people, is already making up the loss; France, in spite of having regained Alsace-Lorraine, has to-day only 39½ millions. Comparison of the populations of Britain and France shows that in 1801 France was 60 per cent. ahead; in 1881 the figures were: the United Kingdom 35 millions, France 37 millions; and in 1922 the United Kingdom had 48 millions, France 39½ millions. Comparing the populations of France and Italy, we find that in 1801 France had 50 per cent. and in 1891 25 per cent. more population than Italy, and still led by 12 per cent. in 1913; but in 1922 Italy had passed the 39th million, and in a few years' time, with her much quicker rate of increase, she will leave France behind. From the figures quoted it must be inferred that the natural increase of the French nation has been restricted for at least a century.

Epidemic of Measles in Vienna.

The statistics of the Vienna Board of Health show that there is a recurrence of measles, in epidemic form, every three years in the city. Acting on this knowledge, the authorities have already made arrangements to meet this year's expected demand for hospital beds for infectious cases. Measles is not notifiable in Vienna, and very often no medical help is summoned to a case; thus infection in the schools goes unchecked, as when a child is ill its brothers and sisters frequently continue to attend. The Board of Health has notified the public that the increase of measles is a regular occurrence, giving no cause for undue alarm.

Increase of Cocainism.

Cocainism has spread to such an extent in Vienna that the authorities have had to institute stringent repressive measures. Apart from action against illicit traffic in the drug, the police have ordered that

persons found to be addicted to the habit shall be detained and, if possible, be sent to hospital. Apothecaries and druggists are instructed to refuse to dispense cocaine in powdered form, only solutions being now permitted. Each prescription containing cocaine must bear the instruction "no repetition." Two recent suicides of well-known persons addicted to the habit have aroused considerable discussion in the city.

May 17th.

ROUMANIA.

(FROM OUR OWN CORRESPONDENT.)

Spread of Typhoid Infection by the Hands.

Dr. Schmidt, of Marosvasarhely (Transylvania), in a recent lecture on the different ways in which typhoid infection is conveyed, stated that in his opinion the dangers of impure water had been greatly exaggerated. He suggests that the principal means of infection is the hands of patients recently recovered from the disease—bacillary carriers who still have bacilli in their stools. Unless the hands are washed after each defæcation they are liable to deposit the organisms on everything they touch, and patients whose daily work necessitates the handling of foodstuffs thus do great harm. Dr. Schmidt urged the establishment of control stations for convalescents in the large towns of Transylvania, where 1000 to 1200 persons die of typhoid yearly. He also advised the display of explanatory circulars in public places and the giving of dictation exercises on the subject in the schools, as was done some years ago in France.

Leprosy in Herzegovina.

Dr. Vokurka, who has lately returned from a study of leprosy in Herzegovina (Jugo-Slavia) found the disease to be very sparingly distributed over the latter country and over Bosnia, both of which countries formed, before the war, parts of the Austro-Hungarian monarchy. Dr. Vokurka surmises that it was probably a new disease when first recognised in Serajevo some 150 years ago, since which time it has gradually extended over the whole country. The principal point of interest in these observations is the confirmation which Dr. Vokurka has found of his theory that leprosy is due to deficient alimentation—in this instance to the consumption of badly-cured mutton. This finding is in harmony with that of the late Jonathan Hutchinson, who traced leprosy in South Africa to the consumption of badly-cured salt fish. Dr. Vokurka considers, however, that the evidence is in favour of the disease being sometimes communicated from man to man, not by direct contagion, but by the consumption of food handled and contaminated by leprosy persons. As this method of transmission is possible only under circumstances of the grossest hygienic neglect, the incidence mainly among the poorer classes is explained. Dr. Vokurka favours legislative control of the sale of food, education of the public as to the methods of transmission, and establishment of leper homes for use by victims of the disease during the infectious period.

The Spread of Venereal Diseases.

The prevalence of venereal diseases per 1000 men in the Transylvanian army (eastern group of the Roumanian army) was 73·6 in 1921 and 61·0 in 1922. The incidence of syphilis is decreasing, owing to the fact that since 1920 soldiers have been examined every week by venereal specialists; if any disease is found the man is sent to a special hospital until radically cured. Those suffering from syphilis are summoned every three months to undergo a course of treatment during the first year afterwards; and during the next two years they are summoned to undergo a blood test every six months. If in the meantime the soldier returns to civilian life, he is registered by the parish medical officer and must present himself at the nearest venereal hospital for a blood test every six months.

May 14th.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE. OPENING OF NEW BACTERIOLOGICAL LABORATORIES.

NEW laboratories built by the College of Medicine to accommodate the department of bacteriology were opened by Sir Frederick Andrewes, F.R.S., professor of pathology in the University of London, on May 25th. There was a large attendance, composed partly of members of the profession residing in Newcastle and the neighbouring counties, but including, also, many men prominent in the affairs of the district, as well as the principal and heads of departments of Armstrong College, and the President, staff, and students of the College of Medicine. The guests were received in the King's Hall of Armstrong College by Sir David Drummond, President of the College of Medicine, and after tea the company adjourned to the physics theatre to hear the addresses. When Sir Frederick Andrewes had completed his address, Sir David Drummond presented him with a key suitably inscribed, and asked him to open the building.

History of the New Department.

Sir David Drummond, after offering a hearty welcome to Sir Frederick Andrewes and the guests, explained why a new building was found to be necessary, and why it had been erected upon a site in connexion with Armstrong College rather than upon the site at present occupied by the College of Medicine. Accommodation in the latter had fallen short of the requirements, especially in so far as the more technical and practical sections of the curriculum were concerned, and the pressure had been felt most acutely in the department of bacteriology. The council of their sister college, Armstrong College, had made the liberal and magnanimous offer of a site adjacent to the agricultural department, and further offered to advance the capital necessary for the erection of the building, stipulating only that they should be consulted as to the design and structure of the building so that it might readily be converted to other needs when the College of Medicine found themselves able to erect their new college upon the site recently acquired next to Armstrong College. This generous offer had been accepted by the Council of the College of Medicine with thankfulness. The University of Durham and the City of Newcastle-upon-Tyne had thus acquired a most important educational development in the shape of what he ventured to hope Sir Frederick Andrewes would find to be one of the best bacteriological departments in the country.

The Place of Bacteriology in the Arts and Sciences of the Present Day.

Sir Frederick Andrewes spoke of the place which the science of bacteriology had now come to occupy, not only in medicine and in public health, but in many of the other arts and sciences. He outlined the history and development of bacteriology from the time when the great Dutchman, Leeuwenhoek, often spoken of as the "father of microscopy," first distinctly saw the organisms which we now know as bacteria. This was nearly 250 years ago, and to Leeuwenhoek, and, indeed, to his successors for more than 150 years, they remained merely objects of interest and wonder. It was not until the rise of chemistry that the nature of fermentation could be understood, and then the microscope revealed that the mysterious substance which, when added to the fermentable material, initiated the chemical changes, owed its power to the presence of micro-organisms. An even more important impulse was given by the discovery of the relation of micro-organisms to infective disease. The things that kill a man touch him more closely than the cheese he eats or the beer he drinks. As early as 835 a silk-worm disease known as "muscardin" was found by Bassi to be due to a fungus, and in the following decade the parasites of favus and ringworm

were discovered. The first bacterial disease to be identified was anthrax. The infecting agent was seen in the blood of infected animals by Pollender in 1849, and by Davaine in 1850.

Of all the great names which stood out in the nineteenth century that of Pasteur must take the first place in connexion with bacteriology. It was a happy omen that these new laboratories should be opened in the very week when the 100th anniversary of that great investigator's birth was being celebrated. For his chief claim to immortality was not that he was a great chemist—as he was—but that he founded a new science. Pasteur transformed bacteriology into an experimental science. He was the first to cultivate bacteria artificially and to bring them into the domain of the laboratory. The second great name in bacteriological science was that of Robert Koch, who devised the means of culture on solid media and enabled us to make certain of the purity of our growths. No difficulties seemed too great for this man to overcome, as was well shown by his discovery of the cause of tubercle.

After sketching the development of bacteriology on the medical side, Sir Frederick Andrewes pointed out that the greatest service which the bacteriologist had rendered was in focusing attention on the human carrier of infection. We now knew that many human beings might become so far immune as to be capable of harbouring and, what was worse, of disseminating the infecting agents of certain diseases.

But in spite of the attention which their importance had attracted, probably not one in a hundred of the existing species of bacteria had any relation to disease. In many industries it had proved possible to utilise the chemical powers of bacteria. Nature had been found to work more economically than art, and the chemistry of these minute organisms was more subtle than that which the laboratory could accomplish. The manufacture of lactic acid and acetone were examples. It was in agriculture and allied industries that some of the most important applications of bacteriology were to be found. In the front rank stood the discoveries of the nitrogen-fixing powers of certain bacteria, especially well seen in the root nodules of leguminous plants, whereby the importance of these in the rotation of crops received a rational explanation. Milk was a particularly favourable medium for the growth of bacteria, so that the whole dairy industry was deeply concerned in questions of bacteriology. Bacteriology was, in fact, a subject of high industrial importance, fully worthy of careful study even if it had no application to medicine.

Sir Frederick Andrewes concluded with a word on the teaching of bacteriology. He said: "It must be taught in two stages. First must come the academic study of its general principles. For this purpose the situation of the laboratories opened to-day seems admirably adapted, and the University may congratulate itself on such provision for the teaching of the subject. The second stage of teaching can only be carried out effectively in relation to the special arts and sciences to which bacteriology may be applied. It would, I think, be a misfortune if the establishment of the central teaching of bacteriology in this institution led to any divorce from medicine, and I trust it may have the contrary effect. The medical aspects of bacteriology can only be studied to advantage in close relation with medicine itself."

The Building and Equipment.

The new laboratories are situated on high ground to the north of the city, adjoining the department of agriculture of Armstrong College. The building comprises 3712 superficial feet, occupies two main floors, with a basement below and accommodation for animals on the roof. Ventilation is effected on the exhaust system, the stale air being extracted by an electric fan, while fresh air is admitted through inlets placed behind the radiators as well as through Sheringham valves at a height of 5 feet 6 inches from the floors. The building is heated by steam on the atmospheric principle. On one side of the hall is a

chemical laboratory, and on the other an office of similar size. The rear part of the ground floor is occupied mainly by a laboratory, 47 ft. by 24 ft. by 14 ft., affording accommodation for about 50 students. On this floor also are three small laboratories and a dark room for photography. Around the first floor landing are arranged five laboratories; one, measuring 34 ft. by 22 ft. by 15 ft., is for sterilisation and preparation of culture media, with a staircase giving access to the animal rooms above. The working benches are made of pitch pine, covered with linoleum, while incubators and water-baths stand on tables covered with asbestos sheets. In place of the usual porcelain sinks a lead-lined trough, coated with bitumen, runs the whole length of the back of the benches. The animal houses open on to a flat asphalt roof, from which an outside lift runs to the ground level, thus avoiding the necessity of carrying dusty materials through the building. The architects are Messrs. Knowles, Oliver and Leeson, of Newcastle.

CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

(Concluded from p. 1078.)

FRIDAY, MAY 18TH.

ON the second day attention was given to venereal diseases. In the State Medicine Section this subject was ably dealt with by Colonel L. W. Harrison, who described the clinic at St. Thomas's Hospital by means of a model. He emphasised the fact that many of the clinics are not yet efficient, and that while this is so, it is no good talking about notification. He also stressed the fact that we are now in a position to abolish congenital syphilis by the treatment of the expectant mother, if the various departments would all work together. In the Women and the Public Health Section notification was discussed, the Canadian system of notification was mentioned, and the need for providing treatment at ante-natal clinics for venereal diseases.

Mr. S. Fisk dealt with the prophylactic treatment of dental caries.

A vigorous discussion took place on the small-pox and vaccination question, opened by Dr. C. Killick Millard. Dr. Millard pointed out that small-pox had lately become a much milder disease, in spite of the neglect of vaccination, and that we are now in a position to deal with outbreaks much more efficiently than formerly. He urged that the damage done by wholesale vaccination was now more than that done by small-pox itself; he advocated an alteration of the vaccination laws and faith in emergency vaccination. Most of the speakers in the discussion opposed these views.

In dealing with the question of vocational unfitness Mr. Cyril Burt, D.Sc., pointed out that a considerable proportion of juvenile delinquency is due to the fact that the delinquents are set to work for which they are not suited. The work may operate harmfully by making too little or too great a demand on the intelligence of the worker.

MONDAY, MAY 21ST.

On the resumption of work by the sections on Whit Monday great interest was taken in the discussion on birth control. Mrs. Mary Scharlieb strongly opposed artificial methods. Mrs. Hodson, of the Eugenics Education Society, put forward the plea that carefully used birth control had become necessary to prevent the propagation of the unfit. We had taken upon ourselves as a community to prevent natural selection and had made ourselves responsible for putting something in its place. Dr. N. Macfadyen, of Letchworth, pleaded for the impartial consideration of the whole matter by the medical profession. Mr. H. V. Roe, of the Society for Constructive Birth Control, mentioned the report by the General Federation of

Trade Unions on the excessive sickness in Dundee, in which were instanced many cases of excessive child-bearing. For example, 11 women had given birth to 78 children, and these had a death-rate of 62 per cent. Many of the audience must have come to the conclusion that intelligent methods of birth control have no place in a scheme for preventing the propagation of the unfit, but that for such a purpose the choice lies between sterilisation and segregation for life.

In the State Medicine Section Dr. H. P. Newsholme opened a discussion on Diet Deficiencies in Relation to Public Health, giving a useful survey of the subject. He pointed out that many of the recent changes in our food were due to urbanisation and the necessity for having food that is transportable and will keep. We cannot, therefore, go back to the old style, but we can compensate and correct for what the new knowledge shows to be errors. Dr. H. Scurfield, after mentioning that the vitamin research confirmed the wisdom of our forefathers in valuing milk, green vegetables, and fruit, said he had been much struck by the way the knowledge of vitamins was being adapted for poultry-rearing.

Dr. J. R. Kerr, of St. Helens, in an interesting paper on the American Industrial Doctor, outlined the progress in the provision of medical and surgical care for employees in America during the last half century, and showed that the Pilkington Special Hospital of St. Helens was doing this work on a large scale.

Mention must be made of a few of the interesting papers read before the Section for the Navy, Army, Air Force, and Tropical Diseases. Sir Leonard Rogers called attention to the intimate relationship between leprosy and rainfall. He emphasised the importance of segregation in self-supporting colonies, and concluded with some suggestive remarks on the treatment of the disease. Dr. W. A. Lethem, in a most interesting paper, produced evidence to show that the spread of bubonic plague among persons in the same house in this country was probably through the medium of *Pulex irritans*, and he contended that disinfection in such cases was of even greater importance than rat destruction. The question of malaria was discussed in communications from Prof. J. W. W. Stephens and Lieut.-Colonel C. W. Holden, R.A.M.C., the former dealing with the treatment of the cases in England, and the latter with the prevention of the disease in the field. The two papers were taken together and gave rise to an interesting discussion on the place of quinine and other drugs in treatment and prophylaxis. Wing-Commander H. E. Whittingham and Flight-Lieut. A. F. Rook described their work on the prevention of phlebotomus fever in Malta. The life-cycle of *P. papatacii* was shown in a series of diagrams and exceptionally beautiful microscopic specimens. The various methods of protection, treatment of buildings and roads, nets, cresol sprays, and fans, were dealt with and their efficacy demonstrated by statistics. The pathology and treatment of various forms of gas poisoning in war was the subject of a communication from Surgeon-Commander Gerald R. McCowen. Major A. T. Frost, R.A.M.C., read a paper on the interaction between syphilis and the ductless glands. He discussed the rationale of potassium iodide in this disease and quoted very encouraging results from the exhibition of thyroid extract in preventing relapse.

UNIVERSITY OF PARIS.—A "cours de perfectionnement" on Recent Ideas concerning Diseases of the Liver, Bile-ducts, and Pancreas, and Diabetes, will be held from July 2nd to 13th in the Amphithéâtre Trousseau, Clinique Médicale de l'Hôtel Dieu. The course will comprise 32 lectures, and will be under the direction of Prof. Maurice Villaret, who will be assisted by Drs. Okinczyk, A. Baudouin, Herscher, Chabrol, Lippmann, Jomier, Brin, Saint Girons, Coury, Benard, Dumont, Deval, Tissier, and P. Descomps. Fee for the course, Fr.150. Foreign medical men and students in the Faculty of Medicine of the University will be admitted. Further information may be had on application to the Secretariat of the Faculty (Guichet No. 3).

Correspondence.

"Audi alteram partem."

THE CAUSE OF DEATH IN ANGINA PECTORIS.

To the Editor of THE LANCET.

SIR,—I cannot leave the very courteous letter of Dr. Walter Verdon, in your issue of May 26th, unacknowledged. But I have no objection to make to the substance of Dr. Verdon's arguments. It seems to me convenient to confine the name angina pectoris to cases of organic disease, and to classify the functional cases with their different phenomena and issues under some other name, or some qualification of the name. I have remarked in my book on arterial diseases, as Dr. Verdon says, how often in cases of true angina death occurs in the slightest seizures. In these cases the heart is very degenerate, but the severer pains seem to arouse more systemic resistance.

I am, Sir, yours faithfully,

Cambridge, May 26th, 1923.

CLIFFORD ALBUTT.

THE CLAIMS OF NON-PANEL PRACTITIONERS.

To the Editor of THE LANCET.

SIR,—In view of the probable alteration of the Insurance Act this year, I should like to bring forward the claims of two classes: (1) Those members of the medical profession who held to their word at the time of the agitation in 1911, and (2) those members of the public who prefer to pay for their attendance privately, although also compelled to pay panel contributions. The promise of the author of the Act was that such patients should have full choice of doctors, even if they were not on the panel, and patients who wished to choose such doctors could do so under the contracting-out clause with its pooling scheme. However, by the action of the local insurance committees these conditions have been rendered a dead-letter. Would it not be a simple act of justice to have these wrongs remedied in the impending changes?

Practising as I do in a town of industrial people, I have felt that the numerous patients who still hold to me, in spite of being allotted a panel doctor, are worthy of consideration, and that to them contracting-out on reasonable terms should be allowed without unnecessary restrictions in the way of forms and files. I can see no reason why panel doctors should object to this if they recall that the non-panel men still stand where they once stood before the débâcle.

I am, Sir, yours faithfully,

RAYMOND H. SHAW, M.S., M.B.,

May 25th, 1923. Senior Surgeon, Great Yarmouth Hospital.

A TREATMENT FOR TAPEWORM.

To the Editor of THE LANCET.

SIR,—With reference to the article on the Treatment of Intestinal Worms in your issue of April 14th, I desire to draw attention to a treatment for tapeworm which will, I think, be found on trial to give consistently satisfactory results.

Some years ago the writer was called upon to treat a case of very intractable tapeworm (*saginata*) infection, which had existed for over a year, and had survived three vigorous treatments with freshly prepared emulsion of ethereal extract of male fern, in addition to one with pelletierine tannate, the whole worm on each occasion, with the exception of the head, having been evacuated en bloc. On consideration it seemed to me that in such cases, after the expulsion of the bulk of the worm with male fern, instead of the usual policy of wait-and-see, additional measures should at once be instituted with a view to inhibit the growth of further segments from the retained head. Accordingly, immediately after a fourth treatment with male fern which, as before, removed all the worm with the exception of the head,

15 gr. of beta-naphthol in tabloid form were administered to the patient each morning, for ten consecutive mornings, on an empty stomach along with a cup of tea, no food being allowed until lunch time. The result was altogether satisfactory, no trace of the worm ever after being seen.

This treatment has been tested both by myself and others in many subsequent cases, and in no instance has it been known to fail.—I am, Sir, yours faithfully,

JOHN W. TOMB, M.D., D.P.H.

Mines Board of Health, Asansol, Bengal, India, May 10th.

THE LANGUAGE OF MEDICINE.

To the Editor of THE LANCET.

SIR,—The reform of the English in which much medical literature is written would be a task of terrifying magnitude, involving, as it would, nothing less than the reform of the writers, but I should like to enter a protest against one common offence, the employment of hybrid compound words, such as "peri-aqueductal" and "hypo-somnia." What would be thought of the education of a writer who dealt in such impossible barbarisms as "Tête-Schmerz" or "Doppel-entendre"? Yet it is only general ignorance that makes the former more tolerable than the latter. If it is beyond our power to express our meaning with the assistance of Greek or Latin without employing impossible compounds, why should we not make a serious effort to say what we have to say in English? The language possesses a splendid vocabulary and an august literature, and the moderate labour involved in writing in a manner worthy of both these great possessions would result in making our medical journals much better reading, and would be of very real benefit to the writers.

I am, Sir, yours faithfully,

East Grinstead, May 21st, 1923.

F. C. POYNDER.

DIETETIC TREATMENT AFTER GASTRO-ENTEROSTOMY.

To the Editor of THE LANCET.

SIR,—I was much interested in reading in THE LANCET of March 31st (received yesterday) Sir Berkeley Moynihan's interesting address on the treatment of duodenal ulcer, in which he sets out the menu which he gives to all his gastric and duodenal cases after operation. In this he mentions "meat cooked a second time," "boiled milk," and "the teeth and gums and the inside of the cheeks should be brushed with care two or three times daily."

As to the first, I prefer meat once "cooked to a turn"—i.e., juicy tender flesh which dissolves in the mouth during mastication. I consider over-cooked meat—all the sap remaining in the oven—on a par with cooked timber, absolutely useless as a food; and after long experience in this land of meat-eating I have been forced to the conclusion that it acts as a foreign body and as such is a fertile source of cancer of the stomach. In reference to the second, I happen to be a believer in the dictum "boil milk and you spoil milk," and consequently I order fresh milk when it can be obtained from a healthy cow; but if any doubt should exist as to the latter I recommend scalding, always with primary scalding of the vessel in which it is about to be retained. In many adults there seems to be an extraordinary repugnance to milk, which boiling intensifies, a dislike which I can only explain by the difficulty they find in digesting it. This may be ameliorated by the addition of barley- or mineral-water, and a few grains of citrate of soda. In suitable cases a teaspoonful of whisky to each glass of milk is a helpful combination. I never permit milk to be taken with a meat meal—for which (dinner) champagne is my nomination.

As to the last-quoted item—"brushing of teeth, gums, and cheeks"—I have no experience of brushing the two latter, but have had an extended one in the brushing of teeth. Rightly or wrongly, I have come to the conclusion that a large percentage of human woe—

e.g., pyorrhoea, dental caries, gastric pollution, appendicitis, and organic decomposition in general—is caused by the inane daily scrubbing of teeth with bristles and by the insane use of chemical dentifrices, both of which lacerate and mortify living tissue, destroy epithelial defence, and provide the entrance for hostile germs. I earnestly invite attention to the handicap this kind of thing imposes on the natural disinfectants—saliva and mucus. I do not believe that there is a human being to be found outside a mad-house who advocates similar brushing of the interior of the anal canal. If such a hygienic enthusiast can be discovered I am prepared to lay him odds that in nine cases out of ten the immediate result will be proctitis plus toxæmia, and that the ultimate one will be cancer.

In ventilating this opinion I do not wish it to be inferred that I disapprove of cleansing the teeth at bedtime. On the contrary, gentle rubbing with a soft (badger hair) brush and some ordinary soda or other effervescent potable water is an unirritating and salutary procedure, and I can personally vouch as to its being an effective and agreeable one. But as to disinfection of the gums and buccal mucous membrane the job appertains to the natural scavengers, and any artificial meddling with their work is as insensate as it is destructive. In other words, do not put anything into your mouth that you would be ashamed to put into your stomach.

I am, Sir, yours faithfully,

JOHN O'CONOR, K.B.E., M.D.

Buenos Aires, April 25th, 1923.

The Services.

ROYAL HOSPITAL, CHELSEA.

Maj.-Gen. H. C. Sutton to be Lt.-Gov. and Sec., vice Maj.-Gen. W. D. Bird.

ROYAL ARMY MEDICAL CORPS.

Capt. A. G. G. Thompson retires, receiving a gratuity, and is granted the rank of Maj.

Temp. Capt. V. J. A. Wilson relinquishes his commn., and retains the rank of Capt.

Temp. Capt. E. K. Campbell relinquishes the actg. rank of Maj.

Temp. Lt. R. W. Shaw to be temp. Capt.

ARMY RESERVE OF OFFICERS.

Col. N. Faichnie, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

Lt.-Col. G. S. Crawford, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

General List: Maj. E. R. Lovell (late R.A.M.C., S.R.) to be Capt., and relinquishes the rank of Maj.; A. H. Richardson (late Surg. Lt. Royal Navy) to be Lt. Capt. H. Wade relinquishes his commn., and is granted the rank of Col.

General Hospitals: Lt.-Col. (Bt. Col.) A. B. Gemmel, having attained the age limit, is retired and retains his rank; Maj. G. R. Murray, having attained the age limit is retired, and retains the rank of Maj.; Capt. A. W. Harrington and G. Wright relinquish their commns. and retain the rank of Capt.

Capt S. D. Reid to be Div. Adj., 14th (II. Counties) Div., T.A., vice Capt. J. Higgins, vacated.

INDIAN MEDICAL SERVICE.

Lt.-Col. A. A. Gibbs to be Col.

Chuni Lal Katial and Ram Chand Goulatia to be temp. Lts.

The King has approved the grant of the rank of Capt. on retirement to the undermentioned: Braj Bushan Kapila, Gauri Shankar Bhargava, and Girija Sankar Chatarji.

ROYAL AIR FORCE.

The undermentioned are granted short service commissions in the ranks stated: E. D. D. Dickson (Flight Lieutenant) and J. B. Gregor (Flying Officer).

H. H. R. Bayley is granted a temporary commission as Flight Lt.

Flight Lt. C. S. Dowdell relinquishes his temporary commission on ceasing to be employed.

Obituary.

VAUGHAN HARLEY, M.D. EDIN.,
M.R.C.P. LOND., F.C.S.

Edward Vaughan Berkeley Harley, who died suddenly on May 21st at the age of 59 years, was the son of the late Dr. George Harley, F.R.S. He studied medicine at Edinburgh University, obtaining the bronze medal in pathology, and graduated M.D. with honours in 1886, being awarded the gold medal for the best thesis. The next two years were spent travelling round the world, during which period he had the opportunity of working with the late Sir Patrick Manson. The succeeding four years were occupied in scientific study in Paris (under Profs. Pasteur and Roux), Leipzig (under Prof. Ludwig), Vienna, Buda Pesth, Turin (under Prof. Mosso), and Christiania. In 1893 Harley was invited by the late Sir Victor Horsley to return to London to organise the first department of pathological chemistry in England, in the pathological department of University College, London, and this became a centre of research for post-graduate students. In 1894 he was appointed Grocer Research Student. When Horsley retired in 1896 Harley was appointed professor of pathological chemistry, continuing to occupy the chair until 1919. During this period he published a large number of scientific papers and collected a band of enthusiastic workers in the laboratory. He took a keen interest in the incorporation of University College in the University of London and served on the committee engaged in raising the necessary funds.

In addition to his work as a physician Harley was much interested in farming, especially in shorthorns. For the last 20 years he applied scientific methods at his farm at Walton Hall and took a particular interest in forming the "Notlaw" herd. He won numerous prizes at all the big shows, was the breeder of many other prize-winners and his animals did very well in the Argentine. His Oxford Downs sheep were also successful in the show yard. In addition, he was a breeder of Shires and Large Black pigs. In 1911 he was elected a member of the council of the Shorthorn Society and served on it until his death, being president in 1918.

Prof. Harley married in 1905 Mary, eldest daughter of the late Canon Blagden, and leaves two daughters.

GEORGE HALIBURTON HUME, F.R.C.S. EDIN.,
M.D. EDIN., D.C.L.,

CONSULTING SURGEON, ROYAL INFIRMARY, NEWCASTLE-ON-TYNE

THE death on May 8th of Mr. Hume in his seventy-eighth year removed one whose name was intimately associated with surgery in the North of England. Born in Berwickshire, educated at Kelso Grammar School and Edinburgh University, George Haliburton Hume became L.R.C.S. Edin. in 1866 and M.D. in the following year, returning then to Newcastle, where he practised as a surgeon from 1868 to 1914. In 1868 he was appointed assistant surgeon to the Royal Infirmary, retiring as senior surgeon in 1905 and taking a prominent part in promoting the building of the Royal Victoria Infirmary, which was opened in 1906. His deep personal interest caused him to become the historian of the infirmary. For some years he was lecturer on physiology in Durham University, which granted him the D.C.L. in 1893, when he gave the address on the Evolution of Surgical Principles at the meeting of the British Medical Association. He also examined in surgery for the University. Mr. John Clay, one of his younger colleagues on the infirmary staff, writes:—

"Hume was a surgeon who had a wonderful influence on all around him. I can still remember as a child the awe and respect with which he was spoken of in the remote villages of Northumberland. In the operating theatres and on committees his personality seemed at once to bring about a condition of order and diligence. Although silence was suc-

a prominent feature in his character, when he spoke the words were well chosen and the matter good. His power of conveying much by few words is exemplified in the story of an operation, where the conditions found were not those that had been diagnosed. The practitioner asked him, "What shall we tell the patient's friends?" Hume's answer was, "The truth." As a surgeon he was as thoughtful as a physician, giving the greatest attention to detail in the examination of his patients. He was a patient and careful operator. In the wards he impressed his staff with the wisdom of his judgment, and the care he took in forming it. This was especially seen in his treatment for the relief of obstruction of the urinary passages, where his patient and gentle perseverance was a lesson to us all. In the building of the new infirmary he was continuously with the architect in the working out of the plans, and it is to him we are largely indebted that the hospital is so pleasant for all who work there."

Hume had worked in Berlin and Vienna as well as in Edinburgh, and his wide knowledge of surgical literature made his clinical lectures of great interest. Throughout his life as a teacher he emphasised the importance of principles, and his own consistent following of them earned for him the respect of the community.

Mr. Hume married in 1878 the daughter of Mr. Minchin Jackson, by whom he had two sons and four daughters.

JAMES MIDDLETON GRAHAM SWAINSON, F.R.C.S. ENG.

Mr. Swainson, who died suddenly on May 16th, was in his fifty-first year. He received his medical education at the Westminster Hospital, qualifying in 1896, and becoming successively house physician, house surgeon, and resident obstetric assistant. After a voyage to South America as surgeon in the Royal Mail Steam Packet service he entered the Royal Navy in 1898, obtaining a high place in the entrance examination. Having served abroad on the China station in H.M.S. *Powerful*, and desirous of particularly devoting himself to surgery, he resigned his commission in 1902, and became resident medical officer at the Queen's Hospital for Children, Hackney. In 1905 he obtained the F.R.C.S., and in the following year was appointed surgical registrar to the Westminster Hospital and assistant surgeon to the Queen's Hospital. In 1908 he was appointed surgeon to the Bolingbroke Hospital, and soon after became assistant surgeon to the Westminster Hospital, as well as surgical tutor and lecturer in minor surgery. Soon after the outbreak of the Great War Swainson was put in charge of the Scottish Red Cross Hospital at Dunkirk, and for some time carried on there the most laborious surgical work until his health completely broke down, and he returned to England altogether incapacitated. His ardent hope to practise surgery remained unrealised owing to the state of his health, and he relinquished his various appointments. Subsequently for two years he worked on the medical boards of the Ministry of Pensions. In 1921 the post of demonstrator in anatomy at St. Thomas's Hospital Medical School becoming vacant, Swainson applied for it and obtained it. His anatomical knowledge had always been extensive and accurate, and it was now with great keenness and interest that he endeavoured to perfect himself in human and comparative anatomy and embryology. This scheme, too, was unhappily frustrated by the short illness which terminated in his death. Possessing as he did a firm grasp of scientific facts and much philosophic detachment, Swainson should, with a sandler fortune, have gone far towards great success either as a surgeon or as an anatomist. His memory will be revered for the courage with which he faced his eclipsed career and the shipwreck of his hopes.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—

Sir Clifford Allbutt will be present at the annual dinner, to be held at the Café Monico, Piccadilly, on June 19th, to receive the triennial gold medal presented by the Society to a distinguished member of the medical profession.

THE SIMMINS APPEAL FUND.

THE appeal on behalf of the children of Temp.-Surg. Lieut. Alfred George Simmins, R.N., who died within a few hours of his wife on March 23rd, has evoked a ready response. The first list of contributions appeared in THE LANCET of April 21st, and the second list is now given. The fund, which has almost reached £1000, still remains open. Cheques and postal orders should be addressed to the treasurer, Simmins Appeal Fund, and addressed Royal Northern Hospital, Holloway-road, London, N. 7.

Second List of Contributions.

	£	s.	d.
Members of London Stock Exchange (Private Collection, per H. P. Semon)	106	14	0
Board of Management of Hospital for Sick Children, Great Ormond-street	25	0	0
A few Members of Lloyds, with promise of more to follow	20	5	0
Gerald Stanley	20	0	0
Drs. Rodgers, Fergus, and O'Neil	12	12	0
O. L. Addison; E. R. Carling; F. J. Clemenston; Mrs. A. M. Collins; A. Evans; L. G. Glover; Edith Hudgell; C. P. Merriam; W. Turner; G. B. M. White	10	10	0
Anon.; R. Pickard; F. D. Saner; G. Stewart; O. Thomas	10	0	0
C. Beale; Capt. A. S. Blackwell; Dr. Boden; E. A. Cockayne; J. Fawcett; A. G. Hay; F. C. Lake; A. H. Levy; J. D. R. Munro; W. H. Mollison; A. Blackhall Morison; Sir J. Herbert Parsons; P. M. Rivaz; A. C. Roxburgh; P. Smith; H. C. Snell; A. G. Sutton; W. E. Tanner; A. H. Tubby; G. E. O. Williams	5	5	0
Anon. (2); A. G. Campbell; Country G.P.; Dr. Friel; J. T. G.; Lt.-Col. L. W. Harrison; Sir Thomas Horder; Barty King; Marquess of Northampton; F. W. Price; E. Telsall; E. E. Ware	5	0	0
Mrs. Singleton	3	10	0
R. Anderson; H. R. Andrews; A. Bevan; Stella Churchill; E. S. Clow; H. Davies; R. Gillbard; J. A. Glover; G. Graham; A. Griffith; Violet Hort; Lord Islington; C. E. Jenkins; C. MacMahon; W. H. McMullen; J. R. Munro; S. Payne; W. R. Reynell; D. D. Ritchie; A. S. Woodward; L. W. Yealland	3	3	0
Anon.	3	0	0
T. G. Wilson	2	10	0
W. J. Smyth	2	7	6
B. H. Barton; H. B. Brackenbury; J. Burnford; Aldo Castellani; W. F. Castle; H. Crampton; P. J. Clausen; Drs. Dora Colebrook and Henrietta Davies; C. B. Dansie; G. H. Davy; M. Donaldson; Gertrude Edis; P. P. Ellison; L. S. Fry; Wm. Gayes; W. S. George; R. M. Going; D. H. Griffiths; Ivy E. and A. C. Haslam; Lt.-Commr. L. B. Hill; W. H. Hooton; A. Howell; Sir Arthur Keith; J. B. Kennedy; H. D. Lauchlan; C. A. Lawrence; M. Longinotto; A. A. Parson; Mrs. E. W. Paulley; A. R. G. Pocock; G. H. Ransome; L. H. Robertson; B. B. Sharp; E. Shaw; C. Smeeton; G. H. Spencer; A. Starling; R. H. Steen; J. G. Stevens; J. Taylor; Dr. Uthoff; Sir Jenner Verrall; S. H. Waddy; K. Walker; C. P. White; R. Wilkinson; A. E. M. Woolf	2	2	0
Anon.; W. O. McKane; N. W. Powell; G. Taylor; W. L. Watt	2	0	0
Mr. and Mrs. O. Adamson	1	11	6
Lt.-Commr. A. C. Walker	1	10	0
I. Bennett; C. Berkeley; G. Black; G. M. Blair; Capt. H. Bloxsome; A. W. Bourne; S. Bree; Vice-Admiral E. F. Bruen; C. Clayton; R. Cock; D. M. Connon; Emily S. Cooke; H. Dixon; Dorothy Dobbin; G. J. Dudley; T. R. Elliott; J. Fletcher; A. S. Gubb; J. S. Hall; A. G. Henderson; R. K. Howat; Hunterian Society; "In Memory of Donald"; F. N. Jaboor; Mrs. M. Jenkins; Capt. E. B. Jones; J. G. Jones; T. C. Last; L. M. Ladell; E. A. Leviser; A. G. Levy; W. S. Loder; C. J. R. MacFadden; R. Marshall; F. N. K. Menzies; Major A. H. M. Mitchell; P. H. Mitchener; G. B. Morley; M. Mottram; W. Oats; H. Robertson; G. R. Rudkin; A. E. Rutherford; W. Sandol; C. H. Sedgwick; H. Sharman; A. W. Sheen; G. B. Siddall; F. W. Strugnell; H. Sutherland; L. T. Thorne; W. Tyson; H. J. Van Praagh; L. A. Walker; Dr. Westman; S. Wickenden; W. O. Williams; C. W. Wigram	1	1	0
Anon. (2); R. B.; G. S. E. (Board of Trade); Lt.-Col. G. F. Gubbins; W. Kaula; A. G. M. Paget; L. C. C. Reynolds; Lt.-Commr. L. Warren; Col. D. Wilkie	1	0	0
Amounts under £1	1	12	6

THE GENERAL MEDICAL COUNCIL.

THE summer session of the General Medical Council was opened on May 29th. Pending the election of a President, the Senior Treasurer (Mr. H. J. WARING) occupied the chair, and welcomed two new members of the Council—Sir W. Leslie Mackenzie, Crown Nominee for Scotland, who was prevented by illness from taking his place at the November session, 1922, and Prof. W. L. H. Duckworth, representative of the University of Cambridge.

Election of President.

On the motion of Sir NORMAN WALKER, seconded by Sir JOHN MOORE, Sir Donald MacAlister was re-elected President.

The President's Address.

THE PRESIDENT began by alluding to his long service of 34 years on the Council, and to the fact that he had been first elected president 19 years ago, and he thanked the Council for their invitation to enter upon another lustre of responsible duty in the chair. He continued by drawing attention to the special relations of the Council to the Privy Council and said: "In some matters the approval of the Privy Council is necessary to make our decisions operative. In others, our decisions are subject to an appeal to the Privy Council. It regulates our elections, and it advises the Crown concerning the appointment by His Majesty in Council of five members and three additional members. It applies to British Possessions and foreign countries the part of the Medical Act, 1886, which makes professional reciprocity possible. Lastly, if in anything the Medical Council neglects its duty, the Privy Council may formally direct that the duty shall be performed; and in default of obedience, the Privy Council may itself 'exercise any power or do any act or thing vested in or authorised to be done by the General Council.' Our minutes, the reports of our inspectors of examinations, our resolutions for the recognition of Colonial and foreign diplomas, and others of our Acts, are accordingly submitted officially to the Privy Council, in order that its statutory power of supervision may be conveniently exercised. Our regular work thus brings us into constant and intimate association with the Privy Council Office, and in particular with the Clerk of the Council as head of its administrative staff. Sir Almeric FitzRoy has held that responsible position since 1898, and his retirement from office, on the ground of age, is announced to take place in July. In all the 20 years during which it has been my privilege to take counsel with him on the Council's business, he has never failed to accord me his wise and sympathetic assistance, or to manifest his understanding interest in the Council's activities and in their bearings on public and professional welfare. I have had the like testimony from my predecessor in the chair, Sir William Turner, and from many other colleagues on the Council. His membership of various departmental committees and Royal commissions, such as those on physical deterioration, midwives, venereal diseases, and the Dentists Act, has made him familiar with the subject-matter of medical and dental problems which concern the Council, and has enabled him to make from his own knowledge and experience important contributions to their solution. The Council, I am convinced, will be unwilling to witness his retirement, from an office in which he has rendered such signal aid to medical and dental administration, without joining me in a cordial expression of the value we set on his public services, and of our good wishes for his health and well-being when freed from official cares."

The President noted the only change in the membership of the Council—namely, the substitution of Dr. W. L. H. Duckworth for Prof. Gowland Hopkins as the representative of the University of Cambridge, and congratulated Sir Norman Walker, the chairman of business, upon receiving the honour of knighthood.

Dangerous Drugs Act.

Concerning this Act, the President said: "A Bill amending the Dangerous Drugs Act, 1920, and in certain details the Pharmacy Act, 1868, has been the subject of considerable discussion in Parliament, and has now passed into law in an amended form. It adopts as statutory the method of calculating the percentage composition of liquid preparations prescribed in the British Pharmacopoeia of 1914. It mitigates the stringency of certain of the rules to be observed by registered medical practitioners in purchasing, procuring, prescribing, or dispensing the scheduled drugs. And, while it increases the penalties for criminal breach or evasion of the Regulations, it offers certain fresh safeguards against the officious prosecution of offenders by inadvertence. During the passage of the measure through Parliament no communication has been made to the Council by the Government Departments concerned, either on the subject of the proposed amendments, or of the alteration of the Regulations made or to be made under the Acts. But Members of Parliament who happen to be registered practitioners, among them our colleague Sir Sydney Russell-Wells, have taken an active part in the debates on the Bill. They have succeeded in so shaping the new Act as to ensure that its provisions, while carrying out our international obligation to put down the nefarious traffic in certain dangerous drugs, shall be as little oppressive as possible to practitioners whose duty it is to employ them for beneficent purposes."

The Diploma in Sanitary Science.

After bestowing a warm eulogy upon Sir George Newman's Memorandum to the Ministry of Health, on the Advance of Medical Education in England,¹ the President proceeded to call attention to the statutory registrable diploma in sanitary science, public health, or State medicine, dealt with in Section 21 of the Medical Act, 1886. "That diploma," he said, "must by law be such as 'appear to the Privy Council or to the General Council to deserve recognition in the Medical Register,' as a diploma additional to one in medicine already registered. By an Act of 1888, moreover, passed in the year after the Medical Council had recognised and registered the first diplomas in public health, such an additional diploma was made a statutory qualification for the medical officers of health of certain large areas in this country. The law thus made the Privy Council and the General Council the joint guarantors that the registrable diploma was in fact a full and sufficient technical qualification for entering on the important civil functions devolving on such medical officers. These functions have by successive Public Health Acts been multiplied and extended. It is thus the statutory duty of the Privy Council and the General Council, jointly or severally, to see to it that the conditions on which the statutory qualifying diploma is recognised and registered are correspondingly extended. The diploma of to-day must testify that the practitioner who holds it is not merely qualified to practise medicine, but qualified by special training to fulfil all the special professional and administrative duties that to-day are imposed by Statute on the medical officers of the largest civil communities in Great Britain. Naval hygiene, military hygiene, tropical hygiene, and the hygiene of British possessions and foreign countries, whose laws and usages differ from ours, are most important post-graduation studies, and in the national and imperial interest deserve every encouragement that can be afforded by the Government and by professional authorities. Special certificates of honour may properly be instituted for those practitioners who show that they have attained proficiency in these studies. I venture to submit that the Medical Council has no statutory power to control the studies or to recognise such certificates. They concern

¹ See THE LANCET, May 5th, 1923, p. 909.

only the medical authorities who quite properly may grant them, and they are not registrable in the Medical Register. These special studies and certificates, however, are not relevant to the purpose of the statutes I have quoted. They do not bear on the qualification of whole-time medical officers of health to undertake responsible civil duty in the counties and large cities of this country. The Council is thus under statutory obligation to ensure, by its rules for the granting of registrable diplomas in public health, that the course of training to which they bear witness shall be specifically a training for high civil responsibility in public health administration at home. The application of the general principles of preventive medicine to medical practice, and the several special branches of collective hygiene to which I have referred, are proper subjects of study during or after the ordinary medical curriculum. But such study does not ensure the particular kinds of knowledge and experience required to qualify a practitioner for a definitely specialised career in the administrative service of a civil community in Great Britain. The course for the diploma must, therefore, not be modified and diverted from its primary and essential purpose, merely in order that the same diploma may conveniently afford a creditable decoration for practitioners who contemplate careers other than that of the professional medical officer of health. The Council acted on that conviction when it unanimously adopted the new rules under Section 21 of the Act. Sir George Newman in his memorandum adduces weighty reasons of public policy in support of the Council's action. The Public Health Committee will probably present a report on certain communications suggesting modifications in the new rules, which have been referred to it for consideration. The Council will doubtless keep in mind, when dealing with such suggestions, the definite legal obligations it has to observe."

The President went on to say that the warning notice with respect to unprofessional advertising had been amended, and that the disciplinary work of the Dental Board had been considerable, with the result that certain cases heard before it would be submitted to the Council for adjudication. He indicated that all the time of the present session would be spent in disciplinary inquiries. He concluded by making the following statement in respect of the numbers of registered students and practitioners:—

The Statistics of the Profession.

"The rise in the number of registered medical students from 1875 in the year 1916 to 3420 in 1919 was succeeded by a fall to 1808 in the year 1921. Last year (1922) the number of entrants rose slightly, notwithstanding the higher educational qualification required by some of the bodies, to 1833. It is still some 400 above the entries for 1912 and 1913. Possibly it may now fall to a point approaching that of the pre-war years, as a result of the new regulations which came into force at the beginning of this year. The number of medical practitioners registered in 1922 was 1984, which is 224 above the number for 1921, hitherto the highest on record. The number of names removed from the Register, by reason of death or otherwise, was 1045. The result is that the total number of medical practitioners now on the Register is 46,477, which considerably exceeds any previous record. As the number of registrations in the Colonial List and the Foreign List has fallen considerably, it may justly be said that the wastage of the war has been much more than made up by fresh accessions to our professional ranks from the medical schools of Great Britain and Ireland."

Dr. CATON, in moving the adoption of the address, expressed the thanks of the Council to Sir Donald MacAlister and their pleasure at his re-election. Sir NORMAN WALKER seconded. The Council then proceeded to the elections to committees, and later to the consideration of penal cases.

FEDERATION OF MEDICAL AND ALLIED SERVICES. THE ANNUAL DINNER.

THE annual dinner of the Federation of Medical and Allied Services was held at the Langham Hotel, Portland-place, London, W., on May 29th, when the Minister of Health, the Rt. Hon. Neville Chamberlain, M.P., was the principal guest. Sir Berkeley Moynihan, the President, was in the chair, and there was a large attendance.

After the toast of "The King" had been duly honoured, the Chairman proposed the toast of "The Minister of Health," who, he said, bore an honoured name most worthily. One had to remember, he continued, that health nowadays was a very serious business, for it was no longer the concern of the individual or of the community or even of the nation. It was now a matter of international consequence. But around matters of health unhappily there had grown up many serious conflicts of opinion and a Minister of Health therefore had to walk warily. The community were at last beginning to take an interest in public health and that was all to the advantage of the Federation. If cancer was only to be cured by early research it was essential that the public should be educated to discover and report themselves very early in regard to those departures from health which cancer declared. It was difficult to draw the line between necessary reticence and adequate publicity so far as tuberculosis was concerned, and especially surgical tuberculosis, in which it was quite impossible for surgery to carry the warfare much further. Almost all of that disease was due to drinking contaminated milk. A report of the Manchester Corporation had declared that 39.5 per cent. of the milk delivered in Manchester contained active living tubercle bacilli. That milk was the food of children who were put in an incubator—the slums—where the organisms grew surgical tuberculosis, and the hospitals in Manchester and every city were filled with hundreds and thousands of patients who came back over and over again with a disease which should have been prevented in its earliest stages. Public health could no longer be studied unless the public played their part. One of the lessons which we had learned during the war was that no campaign could be planned or launched unless regard were paid to the casualty lists, for the strength and striking power of the army depended upon the health of the troops. It was the same in industry as in war, and captains of industry were beginning to realise that if they were to carry on their work with the largest profit they must have regard to the welfare of the men working for them. In this connexion the Federation was playing an important part. Its annual report showed that industry after industry was beginning to realise that the Federation was giving them substantial help in this matter, but if the work was to extend and grow it was necessary that further financial support should be forthcoming. The great resources of the Federation in technical knowledge were at the disposal of the Minister of Health, and the Federation would be proud to be made the medium of help in every possible way.

Mr. Neville Chamberlain, in responding, said that there might be more health in his official title than in any of his functions, but he was glad to know that there was a body like the Federation with such vast stores of knowledge and experience to which he could turn for advice and counsel. Ever since he had been interested in public work he had been impressed by the thought that there was no greater benefit that statesmanship could confer on the people of any country than that of improving the public health. No man could enjoy life unless he was physically fit, and unfortunately side by side with the great advance in our civilisation there had grown up new conditions, a greater congestion of population, a higher nervous pressure, and a general increase in the pace at which

we lived that had made increased demands on the human frame and had to some extent destroyed the advantages we might have hoped to have derived. Anything that could be done to raise the standard of health and to teach people how to be healthy was calculated to do more for happiness, prosperity, and efficiency than anything else to which they could turn their minds. He was glad to hear Sir Berkeley Moynihan refer to the coöperation with industry because he felt convinced that that was a valuable sphere of operation. Having regard to the many diseases that prevailed, the causes of which were obscure, it seemed to him that there was nothing they could more fruitfully devote their attention to than the prosecution of research. But more opportunities and more inducements must be provided for men to engage in research. Doctors could not do that and at the same time carry on a general practice in order to live. It could not be doubted that the efforts made in recent years to grapple with scarlet fever, measles, cancer, and other dangerous enemies of mankind, had borne good fruit, for in the years that followed the war, despite all its consequences in suffering and depression, the vital statistics of the country were never so favourable. He supposed that some day they would have a complete health policy for the country, and it would have to come about under a Minister that was fortunate enough to remain in office for more than a few months at a time. He did not pretend to say what that policy would be, but he thought we could even now see where our weak spots lay. The institutional accommodation was inadequate. We had physicians and surgeons who were second to none, but we did not make the best use of their services, nor of the nurses. To attain an efficient health policy all the resources at our disposal had to be used, and it was because the Federation could help in that matter that he wished it all prosperity and success.

In the unavoidable absence of Mr. Charles Carpenter, D.Sc., Vice-Chairman of the Citizens Council, Sir Thomas Horder proposed "Our Guests," coupling with the toast the names of the Rt. Hon. Lord Riddell and Sir William Hale-White, President of the Royal Society of Medicine. These gentlemen having replied, Mr. Ernest Clarke proposed a vote of thanks to Colonel Mummery, the honorary secretary, who in his reply said that the Federation was now working in a very satisfactory way, though there was an adverse financial balance, but he hoped that before another year had passed that balance would be on the right side of the account.

During the evening Mr. Frederick Dawson, a friend of the President, charmingly entertained the guests at the piano. The following were among those present:—

Sir Berkeley Moynihan; Rt. Hon. Neville Chamberlain, M.P.; Sir Walter Kinneir, Controller, Insurance Dept., Ministry of Health; Lord Riddell; Sir William Hale-White, President, Royal Soc. of Medicine; Dr. Herbert Spencer, President, Medical Soc. of London; Sir Arthur Robinson, Permanent Secretary, Ministry of Health; Mr. Alfred Salmon; Mr. W. A. Ward-Jones; Dr. J. Blomfield; Dr. R. McNair Wilson; Mr. Laurence Brock, Assist. Secretary, Ministry of Health; Mr. Cyril Watts; Mr. E. T. Neathercoat, President, Pharmaceutical Society; Sir Bruce Bruce-Porter, representing the Vermin Repression Society; Mr. Harold Morris, K.C., M.P.; Mr. Henry Lesser, LL.B., Hon. Sec., Citizens Council; Sir Charles Macara; Major J. E. Molson, M.D., M.P.; Lt.-Col. F. E. Fremantle, M.P., Chairman, Parliamentary Medical Committee; Lt.-Col. Nathan Raw; Sir Charles Gordon-Watson; Sir Thomas Horder, Chairman, Federation Medical Council; Lord Dawson of Penn; Col. Howard Mummery, Medical Director, the Federation; Commander O. Locker-Lampson, M.P.; Dr. Howard Marshall; Miss Montgomery, R.R.C., representing the Assoc. of Hospital Matrons; Sir Thomas Neill, Chairman, Council, National Health Insurance, Ministry of Health; Mr. J. P. Lockhart-Mummery, F.R.C.S.; Mr. E. Fitzgerald Frazer, F.R.C.S.I.; Sir Malcolm Morris, Vice-President of the Federation; Mr. W. P. Crocker; Sir J. Herbert Parsons, F.R.S.; Mr. Ernest Clarke, F.R.C.S., Vice-Chairman, Medical Council; Dr. R. A. Gibbons; Dr. Jane Walker, Joint Hon. Sec. of the Federation; Mr. W. A. Workman, representing Legal and General Assurance Soc., Ltd.; Dr. J. F. Gordon Dill, Joint Treasurer of the Federation; Sir J. Dundas-Grant; Mr. F. W. Davy; Mr. Montagu Hopson, L.D.S., representing the

British Dental Assoc.; Dr. Charles Buttar, Joint Hon. Sec. of the Federation and representing the Harveian Society; Prof. Frederick Hobday, representing Nat. Veterinary and Medical Assoc.; Mr. R. D. Blumenfeld; Miss Barton, representing the Poor-Law Infirmary Matrons Assoc.

Medical News.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The distribution of prizes by the Duke of Connaught will take place in the Governors' Hall of the hospital on June 13th, at 3 P.M.

HOSPITAL SAVING ASSOCIATION.—At a meeting of the Metropolitan Counties Branch of the B.M.A., held on Tuesday last, a report was discussed on the contributory scheme of the Hospital Saving Association, when the meeting unanimously endorsed the condemnation by the report of the mode of admission of out-patients.

OPENING OF HEATHERWOOD HOSPITAL, ASCOT.—This hospital, which has been built by the United Services Fund to deal with cases of surgical tuberculosis among children of ex-Service men, was formally opened on May 29th by H.R.H. the Duke of Connaught. The building provides accommodation in three wards for 150 patients—babies, girls, and boys.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting was held at the Elizabeth Garrett Anderson Hospital on May 15th, with Dr. Louisa Martindale, the President, in the chair. Miss Octavia Lewin read a paper on Personal Hygiene and its Place in School Teaching, giving instances that had come under her notice of inadequate provision of facilities for personal hygiene. These included insufficient lavatory accommodation in schools, absence of handkerchiefs and of the knowledge of their use, overtight clothing, and indiscriminate kissing of children even when suffering from infectious diseases. Dr. Lewin discussed the various sources from which education on personal hygiene may be expected: (1) the parents; (2) the teachers; (3) the public libraries and the press. Dr. Lewin said how she had found in the Encyclopædia at the British Museum that the pages dealing with disease were so thumb-marked as to be almost illegible. She also showed cuttings of the quack medicines advertised in one issue of a daily paper, which were so numerous as to cover a whole sheet of the paper. A discussion followed in which Drs. M. F. Jevons, A. Parsons, L. Fairfield, L. Wilson, Elmsley, H. Hanson, J. Lane-Clayton, A. Hutchinson, and E. Handley Read took part, showing what is actually being done by the school medical service to deal with the problem.

IRELAND AND THE PASTEUR CENTENARY.—Several representatives from Ireland have been attending the Pasteur Centenary celebrations. The Government of the Free State is represented by Dr. George Sigerson, who as a young man studied in Paris more than 60 years ago. Dublin University has sent one of its most distinguished medical graduates, Sir Alnroth Wright, while the National University of Ireland is represented by Mr. James Merriman, President of University College, Cork, and Dr. J. O'Connor, Professor of Physiology in University College, Dublin.

MEDICAL SERVICE IN CONNEMARA.—A deputation representative of the medical practitioners in Connemara had an interview last week with officials of the Local Government Board, at which they pointed out the condition under which dispensary doctors worked in the county and drew attention to the fact that the sum of £42,000 per annum was provided by the British Government for proper medical service for the Highlands and Islands of Scotland, the doctors being assured of a net income of £50 a year after the payment of all expenses. In Connemara and the poorer parts of Galway the present medical officers were unable to make a living. Connemara in particular was the home of tuberculosis, typhus, and typhoid, and quite a number of doctors had lost their lives through disease and accident in endeavouring to alleviate the sufferings of the poor. A couple of doctors had died of absolute poverty, and within recent years five had died of typhus alone. The deputation made certain recommendations as to the improvement of salaries. It is not an uncommon thing for doctors in Connemara to have to travel 200 miles per week in the discharge of their duty, some of them were unable to afford a motor car, and those who had to hire a car often found their salary wiped out by the bill for travelling expenses. The representatives of the Local Government Department were favourably impressed and assured the deputation that their claims would be sympathetically considered when dealing with the medical scheme, which is expected to come before the Dail shortly.

ASSOCIATION OF ECONOMIC BIOLOGISTS.—The annual field meeting of the association will be held at Cambridge on June 15th. The laboratories and investigations in progress on animal nutrition and physiology in the School of Agriculture will be demonstrated. The laboratories of the National Institute of Agricultural Botany and Seed Testing Station and the field trials of agricultural crops will be inspected, and at the University Farm and Plant Breeding Institute investigations in progress on cereal hybridisation will be shown. Those intending to be present are asked to notify Mr. W. B. Brierley, Rothamsted Experimental Station, Harpenden, Herts, on or before June 6th.

LEAGUE OF NATIONS HEALTH COMMITTEE.—The matters under discussion at the sixth session of the League Health Committee, which began in Paris on May 26th, show the development of inter-Governmental co-operation in public health matters in the two years since the foundation of the League Health Organisation. As regards epidemiological intelligence and public health statistics, a regular and rapid collection and distribution of information has been initiated, and it is hoped that the organisation will become a central clearing house for all such matters. The progress of the three committees of inquiry working under the auspices of the organisation is also under discussion. Of these committees, the first is investigating the prevalence of sleeping-sickness and tuberculosis in tropical Africa since the war. The second and third are joint subcommittees of, respectively, the League Opium and Health Committees on the one hand, and the Health and Transit Committees on the other. The Opium and Health Subcommittee is conducting an inquiry into the quantity of opium and other dangerous drugs required annually by the various nations for legitimate purposes, as part of the campaign against the illicit drug traffic now being conducted by most of the Governments of the world. The Health and Transit Subcommittee is collecting information for a conference between the various European States having navigable inland waterways, for the purpose of co-ordinating and tightening up sanitary control and anti-epidemic measures without interfering with the normal functions of these arteries of trade. Further reports concern the applied research work on a common plan in laboratories scattered all over the world, undertaken during the last year and a half under the auspices, and on the initiative, of the Health Organisation, and aiming at international agreement on methods of testing and measuring the strengths of sera and serological tests. A similar programme is proposed in regard to certain biological products used as powerful drugs, such as insulin, digitalis, and pituitary extract. In the field of executive work and co-ordination between various health administrations attention is drawn to the courses in anti-epidemic work for public health officials that are being conducted under the auspices of the Health Organisation in Warsaw, Moscow, and Kharkov, where the need for trained personnel is so acutely felt. The question of further perfecting and developing the system of visits for international groups of public health officers studying the sanitary systems of one or two countries is also under discussion. By an arrangement concluded with the Soviet Russian delegation at the Genoa Conference, the members of the Health Committee, together with a delegate from the Central Health Authorities of Soviet Russia, constitute a special international commission for discussing the anti-epidemic campaign as it affects Russia.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, W.

THURSDAY, June 7th.—4.30 P.M.

Papers to be read:—Sir Charles Sherrington, P.R.S., and E. G. T. Liddell: Stimulus Rhythm in Reflex Tetanic Contraction. K. N. Moss: Some Effects of High Air Temperatures and Muscular Exertion upon Colliers. (Communicated by Dr. J. S. Haldane.)

Paper to be read in title only:—F. A. E. Crew: The Significance of an Achondroplasia-like Condition met with in Cattle. (Communicated by Sir Arthur Keith.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Wednesday, June 6th.

SURGERY: at 5.30 P.M.

Papers:

Mr. R. H. A. Whitelocke: The Treatment of Fractures of the Patella.

Mr. Winsbury White: The Closure of the Suprapubic Fistula following Prostatectomy; Observations on 68 Cases.

Thursday, June 7th.

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.

Specimens:

Dr. Herbert Spencer: (1) Sarcomatous Ovarian Dermoid. (2) Ruptured Carcinoma of Ovaries; no Recurrence. (3) An Effect on the Fallopian Tube of Torsion of an Ovarian Tumour.

Dr. Russell Andrews: A case of Carcinoma of the Cervix in a Woman of 77 associated with Prolapse of the Uterus.

Papers:

Mr. Victor Bonney: Diurnal Incontinence of Urine in Women.

Mr. Leonard Phillips: The Treatment of Dysmenorrhœa with Analysis of 100 Cases.

Friday, June 8th.

OPHTHALMOLOGY: at 8.30 P.M. (Cases at 8 P.M.)

Annual General Meeting:

Election of Officers and Council for 1923-24.

Cases:

Mr. H. M. Joseph: Progressive Macular Changes associated with Tremors.

Mr. Montague Hine: Three Cases of Hereditary Corneal Opacities.

Papers:

Miss Ida Mann: Some Suggestions on the Embryology of Congenital Crescents.

Mr. P. Doyne: The Tournée Reaction.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

THURSDAY, June 7th.—5 P.M., First Croonian Lecture: Prof. J. B. Leathes: The Role of Fats in Vital Phenomena.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.

TUESDAY, June 5th.—5.30 P.M., Mr. R. A. Hendry: The Value of Antenatal Supervision.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, June 4th.—12 noon, Mr. Simmonds: Applied Anatomy. 2.30 P.M., Dr. Saunders: Medical Wards. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 11 A.M., Dr. McDougall: Electrical Department. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 2 P.M., Dr. Burnford: Medical Wards. 3 P.M., Dr. Pernet: Skin Department.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. MacDonald: Genito-Urinary Department.

FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Department. 11 A.M., Dr. McDougall: Electrical Department. 3 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M., to 6 P.M., Saturdays, 10 A.M., to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, June 4th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Neuropathic Keratitis: Mr. Paton.

TUESDAY, June 5th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Tropic Disorders in Disease of Nervous System: Dr. Hinds Howell.

THURSDAY, June 7th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Disordered Gaits in Nervous Disease: Dr. Hinds Howell.

FRIDAY, June 8th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Myasthenia Gravis: Dr. Saunders.

COURSE OF LECTURES ON NEURO-PATHOLOGY.

MONDAY, June 4th.—12 noon, Pathology of the Neuron: Dr. J. Godwin Greenfield.

A COURSE of 12 LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS and FRIDAYS if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the whole Course is £12 12s., including Anatomy and Physiology, but these Lectures may be taken separately for a fee of £4 4s. The fee for the Course without Anatomy and Physiology Lectures is £10 10s. Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Demonstration of Clinical Cases at 3.30 P.M.

MONDAY, June 4th.—Mr. J. Bright Banister: Gynaecological.
TUESDAY.—Dr. J. Metcalfe: Radiological.
WEDNESDAY.—Mr. C. H. Hayton: Throat and Nose.
THURSDAY.—Dr. Yealland: Medical.
FRIDAY.—Mr. E. Gillespie: Surgical.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's General Hospital, Tottenham, N.

THURSDAY, June 7th.—4.15 P.M., Dr. A. J. Whiting: The General Signs of Cerebral Tumour.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

WEDNESDAY, June 6th.—4.15 P.M., Dr. W. M. Feldman: Foetal Physiology.
FRIDAY.—4.15 P.M., Mr. A. J. Walton: The Thyroid Gland.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.C.

TUESDAY, June 5th.—5 P.M., Prof. A. L. McIlroy: Foetal Welfare and Mortality.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.

THURSDAY, June 7th.—4.30 P.M., Prof. F. G. Hopkins: An Oxidising Agent in Living Tissues.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, June 7th.—4 P.M., Dr. A. M. H. Gray: Eczema.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

MONDAY, June 4th.—6 P.M., Dr. Eric Pritchard: Milk Analysis, &c.

TUESDAY.—8.45 P.M., Dr. Vincent Denne: Prophylaxis in the Treatment of Teeth in Infancy.

THURSDAY.—6 P.M., Dr. Eric Pritchard: Examination of Urine and Stools of Infants.

FRIDAY.—8.45 P.M., Mr. Philip Franklin: The Causes, Treatment, and Prevention of Adenoids and Enlarged Tonsils.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, June 7th.—5 P.M., Mr. L. C. Rivett: Venereal Disease in Pregnancy.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, June 5th.—4.15 P.M., Mr. F. H. Westmacott: Mastoid Disease.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

MONDAY, June 4th.—At Hereford, Mr. T. Carwardine: Abdominal Pain and Its Causes.

Appointments.

MISBAH, A. N., M.D., Ch.B., D.T.M., D.P.H. Liverp., F.R.C.S. Edin., has been appointed Principal Medical Officer for the Government Hospital, Aswan, Egypt.

POTTS, T. N. V., M.B., B.S. Durh., D.Hy., D.P.H., Assistant Medical Officer of Health, Newcastle-upon-Tyne.

RYAN, V., M.B., B.Ch. N.U.I., Assistant Resident Medical Officer, Winsley Sanatorium, near Bath.

TORRENS, J. A., M.D., B.S. Lond., F.R.C.P. Lond., and SMITH, E. BELLINGHAM, M.D., B.S. Lond., M.R.C.P. Lond., Physicians to St. George's Hospital.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Infirmary.—Asst. S.

Birkenhead Borough Hospital.—Hon. Radiologist.

Blackburn County Borough.—Asst. M.O.H., &c. £600.

Boole Borough Hospital.—Hon. Gyn. S. Also Hon. S. to Ear, Nose, and Throat.

Brentwood Mental Hospital.—Jun. Asst. M.O. £510.

Bristol General Hospital.—Clinical Assts.

Charing Cross Hospital Medical School, W.C.—Pathological Chemist. £400.

Derbyshire Royal Infirmary, Derby.—H.S. £200.

Dublin, Dr. Steevens' Hospital.—Hon. Obstet. P. Hon. Dent. S.

Eastbourne, Princess Alice Memorial Hospital.—Res. H.S. £175.

Elizabeth Garrett Anderson Hospital, Euston-road.—Asst. S.

Epsom, Queen Mary's Convalescent Centre.—Jun. M.O. £350.

Fife and Kinross Joint Sanatorium.—Res. Asst. M.O. £250.

Glasgow, Gartloch Mental Hospital.—Locum Tenens. £350.

Guildford, Royal Surrey County Hospital.—H.S. £150.

Hampstead General and North West London Hospital, Haverstock Hill, N.W.—H.P., H.S., and Cas. M.O. Each £100.

Hertford County Sanatorium, Ware Park, near Ware.—Asst. M.O. £300.

Hull Royal Infirmary.—Hon. Asst. S.

India, Countess of Dufferin's Fund.—Two Medical Women. Rs.550 per mensem.

Lancaster County Mental Hospital.—Asst. M.O. £440 17s.

Leamington Spa, Warneford, Leamington, &c., General Hospital.—Res. H.P. £150.

London County Mental Hospital Service.—Seventh Asst. M.O. £440.

London Lock Hospital, 91, Dean-street, W.—Clin. Assistantships. Maidstone, Kent County Ophthalmic Hospital.—H.S. £300.

Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—Asst. S.

North Middlesex Hospital, Edmonton, N.—Asst. M.O. £200.

Oxford, Radcliffe Infirmary and County Hospital.—H.P. £200.

Portsmouth Royal Hospital.—Sen. H.S. £200. Also Two Asst. H.S.'s. Each £150.

Royal Dental Hospital of London, 32, Leicester-square, W.C.—House Anæsth. 10s. 6d. per attendance.

Royal Free Hospital, Gray's Inn-road, W.C.—H.P., H.S., Asst. Cas. O., Obstet. H.S. Also H.S. and Obstet. Asst. £50.

Royal Northern Hospital, Holloway, N.—Ophth. S.

St. Lucia, Victoria Hospital.—Res. S. £500.

St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. P. and Hon. Asst. P.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Clinical Assts.

Ventnor, Isle of Wight, Royal National Hospital for Consumption.—Asst. Res. M.O. £300.

Welsh Board of Health.—Female M.O. £600.

Western Dispensary, 38, Rochester Row, Westminster.—Res. Med. Pract. £100.

Western Australia Lunacy Department.—Sen. Asst. M.O. £552.

West London Hospital, Hammersmith-road, W.—H.P. and H.S. Each £100. Also Asst. Anæsth. and Hon. Med. Radiologist.

West Middlesex Hospital, Isleworth.—Asst. Med. Supt. £350.

Workmen's Compensation Act: Ophthalmic Specialist Medical Referee for County Court Circuits Nos. 24 and 30 (Brecknockshire, Monmouthshire, and Glamorganshire).

Applications should reach the Private Secretary, Home Office, S.W., not later than June 16th.

Births, Marriages, and Deaths.

BIRTHS.

CRUICKSHANK.—At 9, Royal Crescent West, Glasgow, on May 24th, to Dr. and Mrs. J. N. Cruickshank (Dr. May Slimmon)—a daughter.

FORWARD.—On May 19th, at Northmead Cottage, Farnham Common, the wife of Dr. E. L. Forward, of a son.

FRANCIS-WILLIAMS.—On May 15th, at Hillside, Dowlais, the wife of Cecil Francis-Williams, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

McFADYEAN.—On May 18th, at "San Remo," Herne Hill, S.E., the wife of Kenneth McFadyean, M.R.C.S., L.R.C.P., of a son.

ROGERSON.—On May 17th, Dorothy M. Rogerson, M.A., wife of Dr. Rogerson, Broadway, Bexley Heath, of a daughter.

SAWDAY.—On May 25th, at 29, Hartington-street, Derby, to Winifred (née Amos), wife of A. Ernest Sawday, M.B., B.S. Lond.—a daughter.

SCOTT.—On May 21st, at Coupar House, Blandford, the wife of Lieut.-Colonel L. Bodley Scott, M.D., I.M.S., of a son.

SPRENT.—On May 23rd, at a nursing home, Chester, the wife of W. S. Sprent, M.D., of a son.

DEATHS.

COLLINS.—On May 20th, Walter Charles Grosett Collins, M.D.

HARLEY.—On May 21st, very suddenly, at Walton Hall, Edward Vaughan Berkeley Harley, M.D., M.R.C.P., of Harley-street and Walton Hall, Bletchley, aged 59 years.

HARRISON.—On May 18th, at Granville-gardens, Shepherd's Bush, after a long illness, Henry Francis Egbert Harrison, M.R.C.S., L.R.C.P., in his 78th year.

HEGGS.—On May 19th, at Woodborough-road, Nottingham, from the after-effects of gas poisoning in the war, Major Francis Raymond Mitchell Heggs, M.R.C.S., L.R.C.P. Lond., E.A.M.C., T.F., aged 48 years.

HERAPATH.—On May 19th, at "Stoneleigh," Cotham Park, Bristol, Charles Kynaston Coathupe Herapath, M.R.C.S., L.R.C.P.I., aged 69 years.

KNIGHT.—On May 7th, at West Norfolk and King's Lynn Hospital—following an operation—Frederick Charles Rienzi Malins Knight, M.R.C.S., L.R.C.P. Lond., of Watlington, Norfolk (late of 43, Claremont-square, N.), beloved husband of Winifred Knight and son of Dr. Charles Knight, of Letchworth.

PETTER.—On May 24th, at Netherlaw, Darlington, Walter Petter, M.B., C.M. Edin.

WILSON.—On May 25th, at Watergate, Grantham, Richard Wilson, M.R.C.S., aged 77 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LATE DR. H. F. E. HARRISON.—Henry Frank Egbert Harrison, who died on May 18th at his residence in Shepherd's Bush, at the age of 78, was for over 40 years medical officer to the Hammersmith Guardians. Educated at Epsom College, he entered St. Mary's Hospital, and qualified L.R.C.P. Lond., M.R.C.S. Eng. in 1869. Dr. Harrison settled in practice in Shepherd's Bush, where, until he became afflicted with the long illness which terminated his active career, he was a well-known figure. His popularity with his wage-earning patients led to the sobriquet of the "friend of the poor," his friendship manifesting itself both in kindly action and in sympathetic intercourse. To his son, Dr. W. L. A. Harrison, and other members of his family our sympathy is extended.

Notes, Comments, and Abstracts.

MENTAL HYGIENE IN CANADA.¹

BY C. K. CLARKE, M.D., LL.D.,

PROFESSOR OF PSYCHIATRY, UNIVERSITY OF TORONTO;
MEDICAL DIRECTOR OF THE CANADIAN NATIONAL
COMMITTEE FOR MENTAL HYGIENE.

CANADA being a developing country, where population is sparse and territories enormous, it is almost inevitable that the cost of building and maintaining institutions for the mentally ill should be a heavy burden on a population lacking wealth, as so much had to be undertaken in a short time. The wonder is that anything was accomplished. Again, when it is remembered that the host of immigrants drifting from the old world always contain an undue proportion of defectives and mentally diseased it may be understood that our problem has been by no means a simple one.

Dangers of Indiscriminate Immigration.

Resentment is sometimes shown in Great Britain because we take exception to certain types of immigrants, and deport many individuals who wish to become citizens. But the success of a nation depends almost entirely on the character of its population, and a reading of past history makes it abundantly plain that if we are to preserve the rugged qualities which have characterised our people in the past we shall scan the immigrant coming across the seas very closely. It is a normal defence reaction.

Rudyard Kipling and others say that what Canada must do is to pump in the population. That is true, but at the same time it is necessary to put the suction pipe in waters not polluted by defect, physical degeneracy, and social failure. It must be frankly admitted that our public men are greatly influenced by American ideals, and our politicians are following the footsteps of Uncle Sam closely in the endeavour to rob Europe of its needy millions, with little attempt to sort out the types drifting across the seas. Anthropology is not recognised as a science by these enthusiasts, and the history of the rise and fall of other nations is rarely suggested as a topic worthy of the study of the parliamentarian; but the intelligent study of emigration, not immigration, is the most essential thing in Canada to-day. The United States have long ago discovered that Canada as a whole has been occupied by sturdy Nordic types of efficient and capable people to whose descendants they have extended a warm welcome, with the result that we have suffered enormously by the loss of many of our best. If the immigration had been made up of hardy Nordic agriculturalists such as we had 100 years ago all would have been well. Unfortunately, that is not what happened, and apparently is not likely to happen again. The United States have learned their lesson, but realise that it is too late to profit by it. Their best thinkers feel that the damage has been done, and whatever their idealists injected into their original constitution, they are now convinced that all men are not born equal, and that it is possible to scale down to a new depth rather than rise to greater efficiency. But Canada is now entering upon an era of movement in the other direction; our greatest hope is in the importation of good Nordic types from the United States, and this movement is becoming more and more extensive.

The Problem of Child Immigration.

Possibly child immigration needs more careful supervision than any other, as it so frequently includes physical and mental weaklings. Child immigration would be invaluable if of the right kind under rigid psychiatric inspection, as the children grow up in touch with our ways and of course adapt themselves easily, but if they are of the wrong kind they add enormously to our burdens and troubles. To show that the danger is real, let us scan some accurate statistics regarding some 5800 children referred for examination to a National Mental Hygiene psychiatrist. These were special cases; 1386 were mentally subnormal to such a degree that they were incapable of acquiring an ordinary school education. Of this group only 25 per cent. were Canadians, 33 per cent. were foreign born, and the remainder children of recently arrived immigrants. In one clinic alone, in a short time, 107 girls and 24 boys of the most defective and degenerate types, brought by one child immigration society, have come before my notice. Nearly all the girls were persistently immoral, the majority unmarried mothers, many earning a living on the street; altogether they constituted a serious menace to the health and happiness of the community. It is said, of course, that they had been residents of the country for some time before they went astray; the reply is, that ■

careful inspection before sending them and a rigid sorting at the port of arrival would have weeded them out. To carry on the latter inspection is most difficult, but the point is that it should not be necessary.

The Position of Psychiatry in Canada.

That research should have fallen by the wayside is not to be wondered at, and that psychiatry as a subject should for many years have occupied only a subordinate position in the medical curricula of the universities was inevitable. The relations between general medicine and psychiatry have been anything but intimate, and as a rule provincial governmental control of institutions resulted in a lowering of standards.

We passed through the various stages which marked the trail of the self-educated psychiatrist all the world over, and only too often adopted the numerous classifications which emanated from the fertile imaginations of those exploiting them. It was not unusual to find an enthusiast who had a new classification for every case he met—indeed history is now repeating itself along these lines—and a panacea for mental disease was discovered a dozen times a year. On the other hand, it must be admitted that medical education ignored psychiatry to a great extent, and provided little or no instruction for the student. To read some of the modern writers on vocational training and industrial pursuits in hospitals for the insane one could almost believe that these things were recent discoveries, and yet in October, 1862, Dr. Jarvis, of Dorchester, Mass., read a remarkable article before the Association of Medical Superintendents of American Institutions for the Insane, entitled *Mechanical and other Employments for Patients in the British Lunatic Asylums*, in which he showed conclusively that in many of the British asylums occupational therapy (as it is now grandiloquently styled) was developed in a thorough manner. It proved that the experiment was carried on in Britain about 1840, or even earlier, and was continued with increasing confidence for many years.

Psychiatric Experience in Toronto.

After the failure of our psychiatric hospital scheme in Toronto we felt that it would be well to fight for ideals outside of a public service, to scan psychiatry from a new point of view, to lay the foundation for the broader teaching of students, and to educate public opinion along better lines. We established a psychiatric outdoor clinic at the Toronto General Hospital, and interested every social agency in the city—juvenile court, public health, immigration and police departments, social service agencies of all kinds, school physicians and nurses, industrial homes and schools, &c. In a short time we had the whole city working for us, and the clinic has become a powerful factor in the control of juvenile criminality and prostitution, as well as the education of the public to the modern attitude of medicine towards the prevention of evils which have been so manifest and yet difficult to deal with heretofore.

It was felt wise to interest the department of psychology in the University of Toronto in the problem of mental defect. Psychology was ranked as a subdepartment of philosophy, and it did not seem possible to emancipate it from philosophy and physics. Eventually the tide turned and we succeeded in getting not only the coöperation of the psychologists, but their hearty backing, and a great deal of the measuring of intelligence of certain groups of children is being done by them in our clinic. Psychology is coming into its own, and while the wave of excitement, caused by the discovery that psychology has a part to take outside of abstruse speculation, has carried the hyper-enthusiasts too far, yet the well-balanced group, who always save such a situation, realise the true rôle of psychology in the future. No matter how much some psychiatrists may resent the claims of certain psychologists to divine inspiration along special lines of mental investigation, it must be remembered that psychiatry itself has a good many sins and failures to answer for. Even with all the aid given by pathological and clinical investigation, as well as research, can we truthfully assert that psychiatry has kept pace with general medicine as a whole?

The fact that some criticism of psychology and the enthusiasms of psychologists is indulged in does not mean that the importance of psychology is not recognised; on the contrary, it is believed that every psychiatrist should be thoroughly grounded in psychology and psychological methods. Now that psychology has been placed on a footing which makes it rank as a valuable contributor in the study of mental action and behaviour, its claims to recognition cannot be denied, and we should make use of everything it has to offer.

Psychiatry and the War.

We had our outbursts of enthusiasm in certain circles over psycho-analysis, Freudian theories, and sex problems ad nauseam, but it was when war broke out the neo-psychiatrists neuro-psychiatrists, and psychological healers of all kinds found themselves. Shell-shock was their particular fad,

¹ An abstract of the fourth Maudsley Lecture given before the Medico-Psychological Society of Great Britain and Ireland on May 24th, 1923.

and as each performer recited his recoveries, quite oblivious of the truth that the other fellows who employed totally opposite methods of treatment had also 100 per cent. of recoveries, the public stood in amazement at the miracles being performed, and wondered what psychiatry had been doing during all the centuries it had existed. Of course, there were some poseurs, but many of the young men were self-deluded, and, confounding cause with effect, really believed that they could set the whole world straight in a few weeks. Even yet the truth has not yet dawned on a moiety of perfectly honest observers.

Conscription in Canada bore heavily on groups of mental defectives and mildly insane young men who had found their niche in simple farm work or occupations of a routine nature, and the change resulting from the removal to a new environment requiring more mental agility than they possessed resulted in disaster after disaster. But possibly the most valuable fact gleaned from the experience was the discovery that there are many mentally diseased and handicapped persons capable of becoming useful hewers of wood and drawers of water in communities, where, in the past, many were too regularly institutionalised. It means a further linking up of psychology and psychiatry and the using of men trained along psychological lines was applied to vocation and industrial fitness. We have recognised this side in our mental hygiene experiences, and have used with advantage a well-trained official in connexion with the development of this part of the work.

Narrowing Tendency of Institutional Work.

Emancipation from asylum life soon makes it plain that the institution physician is living in a contracted sphere, because after all his medical association is largely with terminal cases; he sees nothing of the evolution of mental disease, particularly in childhood, and is out of touch to a great extent with general medicine. Heads of institutions are necessarily occupied to a great extent with administrative duties, and taking the world as a whole, staffs of the great majority of asylums are so small that research and study cannot be carried on in the best way possible.

The public is really looking for the guidance we have denied it, and when in the past psychiatry has vouchsafed to respond to the request for further light, it has covered its message with a mass of scientific verbiage that no one without the pale could understand. In other words, the aloofness of psychiatrists shut up within the walls of custodial institutions has simply added to the popular misconception of mental disease and given a mysterious tinge to something that should be much better understood by the man on the street. It is only by following such lines as this the amateur dispensers of auto-suggestion and so-called psycho-analysts of similar type can be kept within bounds.

The Mental Hygiene Movement.

When one thinks of the mass of magnificent work done clinically by those who have had time to study the brilliant pathological findings by such investigators as Mott, it is a matter of wonder that so little has been accomplished in the way of actual cure. We must frankly confess that the progress made is not what might have been expected. Experience proves that we have neglected the first principles of preventive medicine, that the road to success lies in the direction of early prevention of mental disease.

It is recognised by the people, when the facts are placed before them, that many methods of the past are simply the outcome of a hopeless and pessimistic attitude that accepts the curse of mental disease as an inevitable and incurable disaster, not far removed from the realm of criminality. Governments not only look to mental hygiene committees for advice, but depend on them to outline and direct many public enterprises. It is true that while the better care of the insane was the motive of the work of Clifford W. Beers, who developed the original Mental Hygiene Committee in the United States, it has been found that this is only a small part of the work to be done. Psychiatrists must no longer be mere custodians of people overtaken by a dire calamity, but aggressive leaders ready to show their mettle in a great cause.

More good has been done by the mental hygiene movement in Canada in five years in the way of improving the care of the insane, the study of defectives, the education of the public opinion to a realisation of the importance of these problems, than was accomplished in half a dozen decades preceding that period. Take, for example, an analysis of 3442 cases under 16, met with in our clinic, and we learn that no less than 8 per cent. could definitely be classed as suffering from mental disease or psychopathic inferiority.

If we are honest we must confess that psychiatry is merely at alpha in its book of knowledge, and that although brilliant work has been done in pathology and clinical investigation an increased recovery rate can scarcely justify us in saying that we have solved or even guessed at the causes of mental disease or indicate just how the law of prevention is to be applied.

Dementia Præcox.

Take the scrap-heap called dementia præcox. Experience during recent years leads one to believe that careful investigation carried on in schools, psychiatric clinics, and juvenile courts, will demonstrate the fact that the victims of the psychosis may nearly always be detected at any early age. It is most important to learn how much prevention can do to steer the patients clear of the tragedy ordinarily awaiting them. At all events it is apparent that biochemical problems, studies in metabolism, in fact a whole series of laboratory investigations, along the most advanced lines are required.

Some of the younger group of enthusiasts who scoff at the influence of heredity, and talk learnedly about environment as the cause of the majority of misfits, pooh-poo the occurrence of dementia præcox at early age, and assert that nearly all cases of children who show the symptoms of this disease clear up eventually. I wish that such were the truth, but unfortunately I have seen during their developmental stage too many cases which eventually decline into complete dementia.

Of course, it will be pointed out that after all eugenics will do more than anything else to solve the problem, but no matter how wonderful eugenics appear in theory, as long as human nature remains as it is the application of eugenics as taught by some ultra-modern teachers will prove not only difficult but nearly impossible. Extreme methods will invariably produce violent reactions, and it is a simple matter to acquire the label "crank" if enthusiasm interferes with the sentiment tradition has woven about marriage. It is difficult to steer between the Scylla of tradition and the Charybdis of eugenic enthusiasm. The very fact that so little satisfactory work has been done on the psychoses of children is in itself evidence that the matter has escaped the attention of most psychiatrists. The physicians in hospitals for the insane are often without practical experience in the matter, and those who are innocent of psychiatric training overlook what is obvious to the skilled observer. Careful investigation shows that in very early life the evolution of many cases of mental disease may be studied—it is to be hoped with advantage to the patient.

The Teaching of Psychology and Psychiatry at the University of Toronto.

It appears that the time has come to revise our methods of educating psychiatrists. So strongly do we feel on the matter that in the University of Toronto we have developed an optional course covering five years in psychology and psychiatry. After much thought we have outlined a course of options and already a group has advanced to the fourth year of the six years' course. They are receiving 60 hours a year of special training in psychology and psychiatry during five years. Out of 80 who applied for the option some 35 of the most brilliant were selected, and this group has been carefully weeded. During their second year in medicine they received a training in elementary psychology. In their third year a course of 60 hours in more advanced as well as experimental psychology is being given, and the students advised to take additional training in chemistry and physics. The fourth year has had 60 hours devoted to abnormal psychology, the exposition of the modern attitude of psychology towards mental defect and mental disease, taking in, of course, the theories of the Freudians, the psychoanalysts, &c. Practical work in the way of applying mental tests to normal and abnormal children has been given, with the idea of making the student familiar with the true value of mental tests, but showing also how they often fail to reveal the whole story. The fifth and sixth years of the course will be largely clinical, the work being carried on in the psychopathic hospital and psychiatric clinic at the Toronto General Hospital. These institutions are certain to offer no end of useful clinical material, which under our law is always available. Such a course will, we hope, equip a band of young psychiatrists with a training of the most useful kind, ready not only to undertake institutional work if necessary, but to carry on practice among mentally diseased persons who do not require treatment in institutions.

We feel that research must not be limited to institutions, but must be put on the broadest basis possible, and include persistent investigation of mental development and mental disease in child life. Such a plan as that adopted in the Toronto schools must eventually become a common one, and means intelligent co-operation between school boards and public health departments; the public health department assumes full authority for the inspection of children and lays out the programme to be followed by the educational authorities in dealing with abnormal types. A psychiatric department exists, and is proving a powerful influence for good; when its industrial and farm schools are in operation further advances will take place. Psychology only too often arrogates to itself the right to deal with the abnormal child, feeling certain that it is able to prescribe the proper treatment. Much as we are indebted to psychology for the

splendid work done among children of low intelligence, there has been failure in the understanding of school pupils suffering from mental disease. To admit otherwise would be to recognise charlatanism as justifiable and advisable.

Intelligence Tests and Precocity.

Our experience with different intelligence tests has now been so great that we are in a position to estimate their value as well as appreciate their inadequacy. Unfortunately, their apparent simplicity and ease of application have resulted in the stimulation of the ambition of hosts of amateurs, especially teachers, whose work is harmful, being limited by lack of vision and knowledge, or a proper conception of the significance of the tests. They cannot understand the danger of accepting a standard of intelligence telling merely a portion of the story, and ignoring the part of it necessary to complete a picture of the child's mind and personality. An outburst in another direction is also under active development, and in psychological and pedagogical circles the discussion of the "supernormal" child waxes warm. The term supernormal is unfortunate and unscientific, as it gives a false impression, and by too many psychologists is loosely applied to a group including well-developed children above the average in intelligence and physique, as well as a group of physical and mental weaklings measuring high by the Binet-Simon scale. In them precocity is the outstanding feature, and their doom under ordinary circumstances easily foretold. What will happen to them under the forcing process so frequently recommended is well known to asylum physicians, who constantly see these wrecks stranded early in university and scholastic careers. Possibly there is little chance of saving them under any circumstances, but there is no argument in favour of hurrying the calamity.

Education of the Public.

The most important part of the work of the Canadian National Committee for Mental Hygiene is to educate people to a knowledge of the importance of having well-educated psychiatrists abroad in the community with the idea of helping to keep the importance of prevention ever in mind, and to scan school populations with a skilled eye with the hope of forestalling a thousand and one tragedies such as one sees to-day.

The psychiatrist of to-morrow must be able to grapple with problems concerning individuals who are social misfits, to analyse behaviour problems of all kinds, and to give advice regarding the mental hygiene of the whole community. It is obvious that outdoor departments or dispensaries should exist in connexion with many institutions near urban centres, although this is more easily accomplished in general hospitals or psychopathic clinics, where facilities for thorough examination exist and laboratory findings are obtainable at a minimum cost. Possibly there is more red tape here in connexion with institutional matters than is the case beyond the sea, but the persistent attempt to break down the barriers imposed by tradition and ignorance is bearing fruit with us. The clinics have robbed the institutions of much of the stigma formerly attached to them. Voluntary admissions are growing in number; so much might be said along these lines that one hesitates to open the subject. Then, again, the importance of prevention must never be forgotten. To do all this it is evident that psychiatrists must be emancipated from a great part of the administrative work which they are frequently ill-trained to do efficiently. They must be given large staffs of specially trained social workers and nurses to carry on follow-up work as well as investigations of home conditions.

The reaction against the purely psychological point of view in school adjustments of mentally handicapped pupils has already shown itself in certain centres, and if the greatest good is to follow the survey of school populations, psychiatrists must equip themselves to carry out this work in the best way possible, for after all it is distinctly a medical problem. How can a psychologist, for example, diagnose and prescribe for a developing case of a manic-depressive or a dementia præcox psychosis? More than ever before we must now take stock of the assets and liabilities of psychiatry. The public must be shown its just reasons for existence, its readiness to adjust itself to the new order of things, and a constructive ability to do something more than merely provide custodial care for those who have fallen by the wayside.

THE PROPERTIES OF COD-LIVER OIL.

Dr. E. Poulsen, professor of pharmacology at the University of Christiania, has prepared a pamphlet, issued by the proprietors of Dr. De Jongh's cod-liver oil (Ansar Harford and Co., Ltd., 182, Gray's Inn-road, London, W.C. 1), in which the medicinal properties of cod-liver oil and the reasons for its employment in disease are set out. The nutritional value of cod-liver oil is well known, and in this pamphlet of some 16 pages its accessory food factor content is discussed in a clear and succinct manner.

HOSPITAL TREATMENT FOR MIDDLE-CLASS PATIENTS:

A SUGGESTED SCHEME OF INSURANCE.

IN an address delivered at the Annual Conference of the British Hospitals Association, held at Sheffield on May 31st, Sir Napier Burnett confined his observations to the income side of hospital finance, and outlined a suggested basis of insurance for hospital patients within certain income limits, £250 to £600 or so (class "B" patients). We give the scheme in abstract substantially in his own words.

The Disabilities to be Met.

The serious financial position of many patients belonging to this class, when overtaken by accident or sickness, requires no special pleading; in many cases such patients are ineligible for admission to a general hospital because of rules laid down in the original charter. During the past 20 years many advances have been made in scientific medicine and surgery, and to keep abreast of these developments elaborate and expensive apparatus has been devised in the equipment of the many new departments that have had to be established to meet the needs of specialisation. Such apparatus leads to a greater precision in the diagnosis and treatment of disease.

The benefits of these scientific attainments are now available for class "C" of patient, but those of moderate means, debarred from the private hospital or nursing home because of the cost, are yet unable to participate in the benefits of modern hospital scientific resources. At present class "B" patients whose annual income exceeds £250 may receive hospital treatment in one of the following ways, namely:—

1. A certain number now find their way into the hospital wards, either as members of a contributory scheme which has no fixed income limit, or they are admitted as the result of some emergency illness, and while in hospital they may or may not be assessed towards the cost of maintenance by the hospital almoner.

2. A comparatively small number of the larger hospitals has recently followed the lead given by many of the cottage hospitals in setting aside a small number of beds for paying patients. Such beds usually show a high percentage of occupation, indicating that they are meeting a real need. Patients admitted to those reserved beds are charged from 2-5 guineas per week towards the cost of maintenance, and in some hospitals the patient also pays for treatment, making his own financial arrangements with a member of the hospital medical staff. General hospitals in this country have not been designed, as in America, to provide separate accommodation for patients paying varying rates either towards maintenance or treatment, with the result that patients in adjoining beds occasionally find themselves paying different rates and consequently are prone to question the equity of the arrangements; whereas in other hospitals the medical staff are not expected to charge the patients in the paying wards for their services. Such an arrangement is likely to lead the medical officer to the opinion that his services are being exploited by the hospital if he is asked to treat patients of a financial status considerably above those with respect to whom his services were contracted for in a voluntary capacity.

3. Again, a class "B" patient may be admitted to a general hospital as a member of some insurance scheme, such as the Sussex Provident Scheme, which undertakes to pay to the hospital the total cost of maintenance plus an agreed percentage to the medical staff for every member in the scheme treated by the hospital. But the maximum income limit of the Sussex scheme is fixed at £350 for husband, wife, and family (up to 16 years of age), and the annual premium for the provision of hospital treatment when required, plus dental and ambulance service, &c., is £2.

The Scheme Set Out.

The main objection to the various arrangements whereby the middle-class patient can receive hospital treatment (with the exception of the Provident Scheme referred to) is that the heavy expenditure for both maintenance and treatment falls on the patient at the very time when he is least able to afford it—namely, when his income is cut off. The ideal scheme will doubtless be reached some day, when there shall be a hospital bed available for any member of the community who requires hospital treatment. In the meantime, the following scheme is submitted as a contribution towards the solution of a difficult and urgent problem.

Provided that the actuarial foundations are sound, a voluntary insurance scheme possesses many advantages. I suggest that, by a system of insurance, hospital provision might be arranged for the class "B" with an income, say, between the limits of £250 and £600 or £700 per annum, the premium for such insurance to be at the rate of £2 per

annum, with the option of paying quarterly or half-yearly. In illustration, let me give the following figures.

Say that in one community there are 5000 people between the income limits above mentioned, who voluntarily join an insurance scheme, in order to obtain hospital treatment when necessary, and when accommodation is available, on the basis of £2 per annum, the hospital would collect £10,000, which would be kept as a pool apart from the other hospital funds. The first call on the pool would be payment to the hospital of the total cost of maintenance of all insured patients treated during the year. The sickness incidence amongst class "C" is a known quantity—namely, 2 per cent. require hospital treatment. The sickness incidence in class "B" is considerably less, and also there is not the same liability to accident, but in order to provide a margin of safety, and also to include husband and wife, let us double the rate in "C" class and allow 4 per cent. of sickness incidence. Out of the 5000 people insured, some 200 might require hospital treatment during the year. Further, if we calculate the average total cost to the hospital of each in-patient as £10, roughly 3 guineas per week, and an average length of stay of three weeks, the hospital would receive £2000 in full payment of the total cost of the insured patients treated. This payment would leave a balance of £8000 in the pool.

The medical staff could not reasonably be expected to render voluntary service; therefore I suggest that the second charge on the pool should be payment to the medical staff, and in order to remove from the wards all possibility of varying tariff charges, an agreed percentage of the pool might be paid into a medical staff fund, to be apportioned by the medical men themselves to their individual members on the basis of work done. Again, to allow of a margin of safety the maximum figure of 50 per cent. may be withdrawn from the pool towards such a fund—that is, a sum of £4000. The further balance of £4000 remaining in the pool after meeting the total charges incurred by the hospital, and the payment to the medical staff, represents the real insurance quota, or so-called profit of the scheme, and this sum should be utilised in the provision of increased accommodation and facilities for the treatment of class "B" patients.

Critical Examination of the Scheme.

Two criticisms of such a scheme readily suggest themselves—namely: (1) The ability of hospitals to supply the requisite accommodation implied by the scheme without in any way interfering with the provision for class "C"; and (2) the machinery for administering the scheme. In regard to (1), a certain number of class "B" make use of the hospital beds as it is. Again, dealing with the figure mentioned in the illustration—namely, 200 patients per annum, as the sickness incidence of the 5000 insured people, that number would roughly represent 13 beds, with an average overturn of 15 patients per bed per annum; further additional accommodation could be provided from the surplus funds as the scheme develops. With regard to the nature of the accommodation, in a number of hospitals paying patients are satisfied to be treated in small wards set aside for the purpose and screened off into cubicles. With regard to (2) the scheme might be carried out by some recognised insurance company already possessing the necessary collecting machinery, but this would deprive the hospital of the outstanding benefit under the scheme. The requisite machinery might quite well be provided by the existing contributory scheme organisation.

The three outstanding advantages that such a scheme, as roughly outlined, would possess are:—

- (1) That the elaborate equipment and facilities for the diagnosis and treatment of disease now possessed by the modern voluntary hospital and obtainable to the same extent nowhere else, would be available for an additional and very deserving section of the community.
- (2) A fresh avenue of finance would be opened up for voluntary hospitals.
- (3) Payment would be provided for the hospital medical staff.

RUSSIAN DOCTORS IN NEED.

To the Editor of THE LANCET.

SIR,—The Russian doctors and medical staff in the famine-stricken regions are in a very difficult situation as they are left without resources, and are deprived of means for bringing help to the thousands of sufferers. Many hospitals and dispensaries in the villages, organised by the efforts of the Russian Red Cross and the Commissariat of Public Health, are compelled to stop their activities because of the lack of funds, medicaments, and surgical instruments. The regions where the population was exhausted by famine are at present centres of endemic and epidemic diseases, dangerous not only to Russia, but also to the rest of the world. Infectious diseases, including consumption, typhus, typhoid fever, and malaria are raging, while severe diseases

of the digestion, in consequence of the famine, are widely spread. It is urgently necessary that help should be rendered from abroad and that an energetic campaign should be continued against the consequences of famine. The Russian medical services alone are unable to master the situation. We appeal to the feeling of solidarity of the medical and scientific men of Great Britain and America, and hope that they will answer generously to the appeal for help of their Russian colleagues.

Donations in money or in kind may be sent to the Secretary of the Medical Aid Committee for Sufferers from the Russian Famine, 68, Lincoln's Inn-fields, London, W.C. 2.

We are, Sir, yours faithfully,

V. N. POLOVTSSEV, Chairman.

May 24th, 1923.

L. HADEN GUEST, Vice-Chairman.

PSORIASIS OF THE NAILS.

To the Editor of THE LANCET.

SIR,—I wonder if any of your readers could give me any useful information about the treatment of chronic psoriasis of the nails. Chrysarobin, besides being unpleasant, has proved of little benefit after many months' trial.

I am, Sir, yours faithfully,

May 22nd, 1923.

"BAULKED."

AMBULANCE COMPETITION TESTS.

Messrs. John Bale, Sons and Danielsson, Ltd., have issued at the price of 3d. each a series of folders for the use of ambulance students preparing for competitions. They contain up-to-date tests with detailed marking sheets and useful hints with regard to training—what should be done and what should not be done. The tests are well worked out, and should afford valuable help for those undergoing their training in first aid.

Parliamentary Intelligence.

HOUSE OF LORDS.

TUESDAY, MAY 29TH.

Smoke Abatement.

Viscount ASTOR asked the Parliamentary Secretary to the Ministry of Health when it was proposed to introduce legislation with regard to smoke abatement. If the Bill was not introduced at an early date it would be impossible to pass it this session.

The Earl of ONSLOW said that the Government intended to introduce a Bill in their lordship's House to deal with this subject. The measure was in process of drafting, and there would be no great delay in its introduction.

HOUSE OF COMMONS.

MONDAY, MAY 28TH.

Coroners' Legislation.

Sir BERTRAM FALLE asked the Secretary of State for the Home Department when he proposed to bring in the new Bill dealing with coroners.—Mr. G. LOCKER-LAMPSON (Under-Secretary to the Home Office) replied: A Bill is in course of preparation, but my right hon. friend is not in a position to say when it will be possible to introduce it.

TUESDAY, MAY 29TH.

Sanitation in Rural Districts.

Captain REGINALD TERRELL asked the Minister of Health if he was aware that in many country districts there was a complete absence of effective sanitation, which on medical assertion might be a serious danger to public health; and whether, seeing that local authorities were inclined to regard the necessary outlay as an undue burden on the rates, he would provide assistance by way of an unemployment grant thereby accomplishing a double benefit.—Lord E. PERCY replied: My right hon. friend is aware that the sanitary conditions are not satisfactory in some country districts, and that the difficulties in the way of improving matters are mainly financial. In cases where the degree of local unemployment is sufficient to warrant an unemployment grant any schemes submitted by local authorities will receive consideration.

Registration of Deaths and Burials.

Dr. SALTER introduced a Bill to amend the law relating to the registration of deaths and burials, which was read a first time.

A Lecture

ON THE

CHOROID PLEXUSES AND VENTRICLES OF THE BRAIN AS A SECRETING ORGAN.

Delivered at the Middlesex Hospital on June 5th, 1923.

By SIR JOHN BLAND-SUTTON, F.R.C.S. ENG.,

CONSULTING SURGEON TO THE MIDDLESEX HOSPITAL.

ALTHOUGH my theme is a morbid condition of the brain, I propose to set before you a parallel in pathology connected with the kidney which may help to explain the remarkable nature of the ventricles of the brain.

A PATHOLOGICAL PARALLEL.

The kidney is a compound gland which strains liquid from the blood. This liquid—urine—charged with products, secreted by the epithelium lining the uriniferous tubules, collects in the pelvis of the kidney and is conveyed by the rhythmic muscular action of the ureters to the urinary bladder, from which it is discharged at convenient intervals. Occasionally the escape of urine from the ureter or from the bladder is hindered, and this hindrance leads to its accumulation in the excretory duct—the ureter, pelvis, and calyces of the kidney—and as they distend the pressure causes the kidney to be gradually converted into a multilocular sac. Coincident with this distension, the muscular tissue of the ureter and the glandular tissue of the kidney slowly disappear. This end-result is known as hydronephrosis. Kidneys are often converted into sacs of this kind before birth. Ante-natal hydronephrosis proves that kidneys are functional in the late stages of foetal life, and this lends support to the opinion that the bath of amniotic fluid, or hydrosphere, in which the foetus floats contains urine.

The damaged urinary organs shown in Fig. 1 belonged to a male infant that only survived its birth a few days. They are represented by a sacculated kidney and a greatly dilated ureter on the right side. There is a small circular perforated diaphragm where the ureter opened into the bladder, but it offered no obstruction to the flow of water from the ureter into the bladder when tested. There were no traces of the left kidney or its ureter. Retention and slow accumulation of urine had destroyed the glandular tissue of the kidney and rendered the boy unfit to live.

HYDROCEPHALUS.

Recent researches into the physiology of the choroid plexuses of the brain prove that they act as glands, and the secretion they furnish is known as cerebro-spinal fluid. These plexuses grow luxuriantly from the surfaces of the velum interpositum in relation with the ventricles of the brain. They are vascular, covered with a single layer of epithelium, and differ in construction from glands in general in having the secreting cells on the surface of the plexus. Experimental evidence indicates that the bulk of the fluid is secreted above the aqueduct of Sylvius. The fluid secreted by the choroid plexuses collects in the cerebral ventricles, and the narrow canal, or iter,

which tunnels the corpora quadrigemina establishes communication with the fourth ventricle. The fluid escapes by means of the lateral recesses into an irregular space at the base of the brain, and forms a pool called the cisterna magna.

The cerebro-spinal fluid occupies the arachnoid spaces of the brain and spinal cord, and exists under considerable pressure. There is no external orifice for the discharge of the fluid, and the evidence available indicates that it is absorbed by veins. Regarded as a secretion, the cerebro-spinal fluid exists under peculiar conditions, and it is formed in late foetal life. Interference with its escape from the ventricles causes the retained fluid to produce changes on the brain which are parallel with those seen in hydronephrotic kidneys.

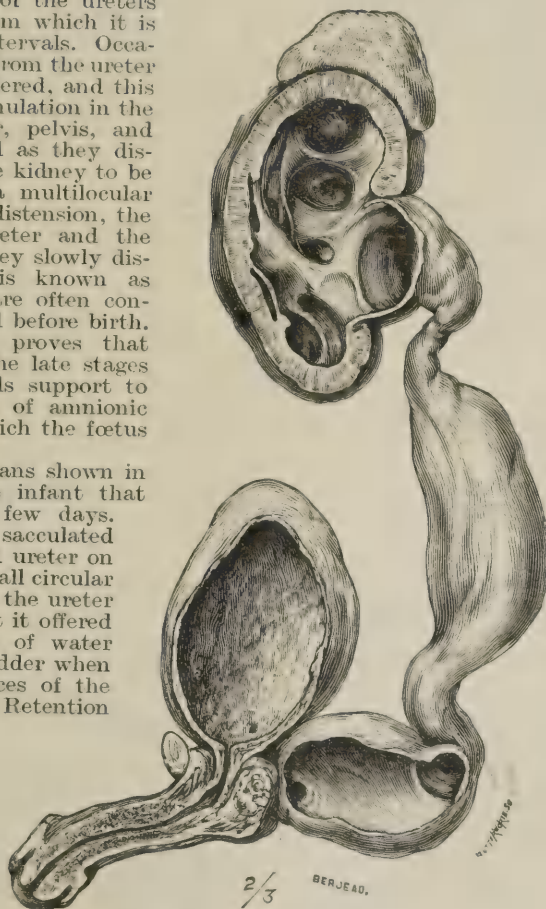
When both lateral recesses of the fourth ventricle are occluded in foetal life the effect on the brain is disastrous. In the head of the child shown in sagittal section (Fig. 2) the lateral ventricles are dilated and form a common cavity with the third which is many times larger than normal; the infundibulum is also involved and so distended that it has flattened the

hypophysis into a thin wafer. The fourth ventricle is dilated, the vermiform process of the cerebellum is effaced, and the choroid plexuses, the secreting elements, have vanished. The brain of this child has been as surely damaged by the pressure exerted by the slow accumulation of retained cerebro-spinal fluid as renal tissue in advanced hydronephrosis. Like the hydronephrotic boy, this hydrocephalic child survived its birth only a few days. The difficulty in investigating congenital hydrocephalus arises from the softness of the brain, especially in the foetal stage. The occlusion of ducts and passages is a common and inexplicable event in foetal life.

In the parallel examples of kidney and brain the organs were destroyed during foetal life and rendered post-natal life impossible. Minor degrees of such changes in kidneys, or in the brain, are not incompatible with life. Many years ago I urged that examples of extreme hydronephrosis found in adults for which no adequate cause could be assigned were due to causes acting during foetal life. This is certainly true of hydrocephalus. Changes beginning before birth may progress with extreme slowness after birth. Here is an example:—

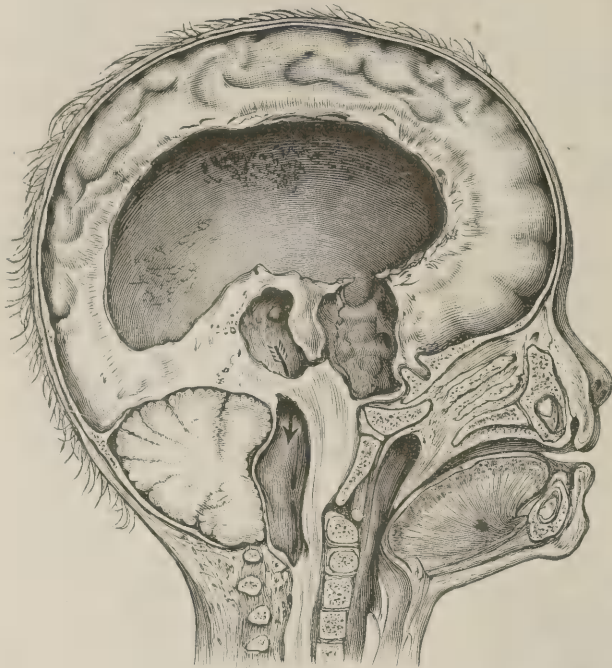
A baker, aged 29, was admitted into the Royal Infirmary, Edinburgh, for fits and other symptoms indicating intracranial pressure. He was submitted to a decompression operation. At the end of a month the symptoms returned and an attempt was made to establish permanent drainage, but he died 36 hours later. The brain was preserved and carefully examined by Mr. J. N. J. Hartley, who gave me facilities for examining it and obtained some excellent photographs. The brain is shown in sagittal section (Fig. 3.) The

FIG. 1.



Urinary organs with the right adrenal of a new-born boy; they show the disastrous effects of ante-natal hydronephrosis.

FIG. 2.



Sagittal section of the head of a hydrocephalic child. The head of the arrow is in the fourth and the feathers in the third ventricle. The infundibulum is widely dilated, the pituitary fossa expanded, and the hypophysis flattened. (Museum, Middlesex Hospital.)

ventricles are greatly distended and the choroid plexuses atrophied. The choroid plexus of the fourth ventricle is obliterated. The third ventricle is converted into a globular cyst which bulged into the circle of Willis, and separated the optic chiasma and the carotid arteries; it also flattened out the hypophysis. *Each lateral recess of the fourth ventricle is completely blocked by a thin diaphanous membrane which juts out like a stunted cone near the flocculus, and separates the roots of the big nerves which lie in this region of the medulla. The occluding membrane is best displayed at the right recess (Fig. 4).*

Occasionally unilateral occlusion of a recess is followed by the formation of a cyst the size of a cherry and a fringe of choroid plexus floats in the fluid which distends it. Such a condition is sometimes called hydrocele of the fourth ventricle. Unilateral occlusion does not lead to hydrocephalus, but such a cyst has produced facial palsy, deafness, anaesthesia of the corresponding side of the face, and other symptoms referable to pressure on the roots of the great nerves connected with this important region of the brain.

Morowoko made a careful microscopic investigation of the choroid plexus in patients dying from general paralysis of the insane. He suggests that the choroid plexus in foetal life exercises its functions, and confirms the view that the choroid gland may be regarded as the main producer and regulator of normal cerebro-spinal fluid, and is the filter of toxic products and passes into the blood the toxic waste products of the nervous system.

In addition to the fluid secreted by the choroid plexuses there is a complex gland which discharges secretion into the third ventricle—i.e., the hypophysis.

It is regarded by physiologists as a ductless gland. I feel sure the infundibulum acts as a duct to the hypophysis; some of its products escape into the third ventricle and mingle with the cerebro-spinal fluid. Occasionally the third ventricle is occupied by colloid stuff, perhaps pseudomucin, which when seen after death resembles jelly, but after the brain has been immersed in hardening solution it assumes an appearance like softened glue. These gelatinous masses have been described as sarcomas of the third ventricle! Dr. J. G. Greenfield showed me one and shrewdly suggested that this colloid stuff is a pathological fluid discharged into the ventricle from a disordered hypophysis.

TUMOURS.

The ventricles of the brain with the choroid plexuses not only agree with the kidney, in principles of construction and function, but in their liability to epithelial tumours. The comparison of the kidney with the cerebral ventricles does not end merely with the effects produced by obstruction to the escape of the secretion, but there is striking agreement in the methods of obstruction. A choroid plexus resembles in principle the Malpighian corpuscle of the kidney, in which a single layer of epithelium covers a vascular coil; the secretion is discharged into the convoluted portion of the uriniferous tubule.

Epithelial membranes are liable to grow papillomas, and when growing luxuriantly in a narrow conduit a clump of papillomas is a very serious obstruction in the adits either of the brain or of the kidney. It is established by the experiments of Dandy and Blackfan that the greater part of the cerebro-spinal fluid is secreted above the aqueduct of Sylvius, and the experimental blockade of this adit leads to rapid and fatal hydrocephalus. Clinical observations agree with the experimental results. The escape of fluid from the lateral ventricles can be hindered by tumours in three situations—at the entrance and at the exit of the aqueduct, and by simultaneous occlusion of the lateral recesses of the fourth ventricle.

The most instructive and impressive examples arise in connexion with the fourth ventricle. The posterior half of the roof of this cavity is very rich in villi

FIG. 3.



Brain in sagittal section showing great distension of the ventricles secondary to occlusion of the lateral recesses of the fourth ventricle. From a man aged 29.

when they transform into papillomas the cavity may be so stuffed with them that the aqueduct of Sylvius is effectually obstructed and the fluid accumulating in the lateral ventricles distends them. The narrow aqueduct in such circumstances may be dilated until it is as big as a goose-quill. The symptoms associated with such conditions are as tragic as simultaneous

obstruction of both ureters, but less amenable to surgical treatment.

The most remarkable form of tumour obstruction is caused by bilateral tumours arising in the choroid plexuses as they emerge from the lateral recesses of the fourth ventricle. These picturesque tufts float in the cerebro-spinal fluid of the cisterna magna; when the

of which are recognised as sequential to damage of the hypophysis.

FORAMEN OF MAGENDIE.

In text-books of anatomy reference is made to a hole in the membranes at the apex of the calamus scriptorius which marks the lower end of the cavity of the fourth ventricle. This hole, called the foramen of Magendie, is supposed to be the means by which cerebro-spinal fluid escapes from the ventricle into the subarachnoidean space. In 1879 I satisfied myself by repeated examination of the brain in situ that the foramen was made in the course of dissection.¹ I have made many examinations since that date and have satisfied myself that it is an artefact. Cleland writes in regard to the foramen of Magendie, "it can be easily demonstrated to be artificial if the dissector is on his guard."² This foramen has had such charm for teachers that it maintains a place in text-books, although sealed up by practical anatomists many years ago.

Modern knowledge of the cerebro-spinal fluid justifies the following summary. The ventricles of the brain serve as temporary receptacles for the fluid secreted by the choroid plexuses; also some secretion from the hypophysis. The fluid escapes through the lateral recesses of the fourth ventricle into the arachnoid area for absorption.

Cerebro-spinal fluid is physiologically useful. Its excessive accumulation does not lead to toxic symptoms, but its retention in gross quantities leads to disaster from pressure effects. The unrestrained escape of the fluid is quickly fatal in children. In the variety of spina bifida called myelocoele the central canal of the cord and the dural sheath open on the skin in the lumbo-sacral region. Many fetuses with this defect are stillborn, and those born alive rarely live more than a few days. In children persistent leakage of the cerebro-spinal fluid is incompatible with life.

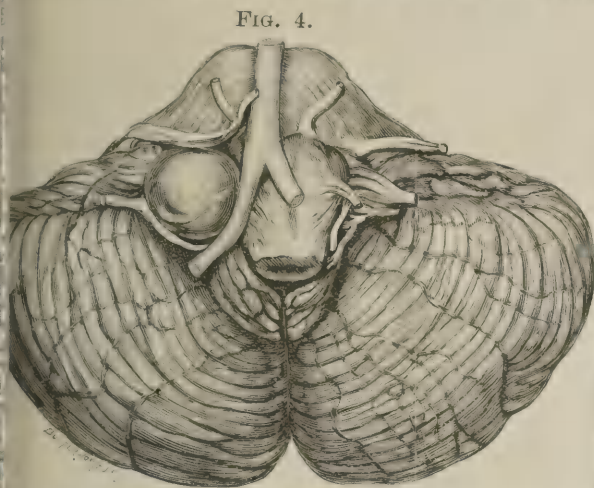
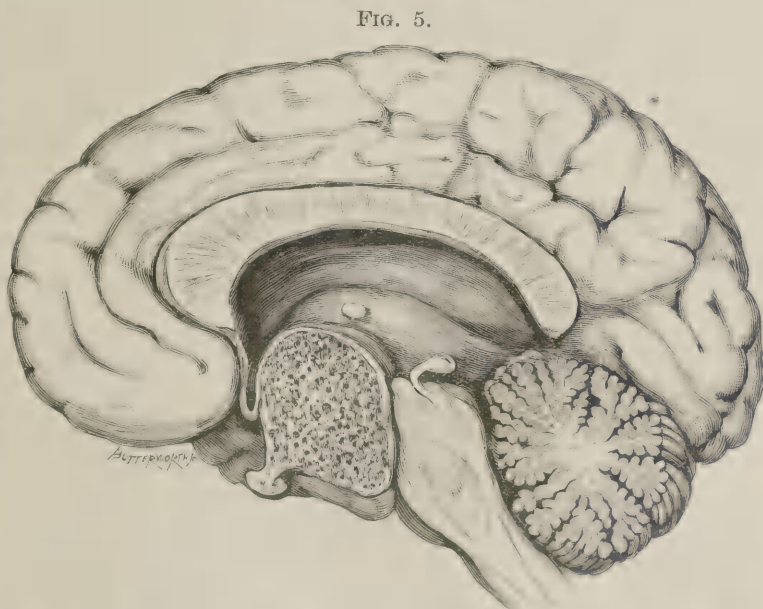


Fig. 4. Under surface of the cerebellum of the brain represented in Fig. 3, showing occlusion of the lateral recesses of the fourth ventricle.

tufts grow abnormally and form clumps of papillomas, they become smothered in fibrinous exudation which not only cements the papillomas together but encases them in a compact mass, the outer part of which is often stratified like the layers of an onion. When such tumours are examined microscopically, the papillomas, in section, are represented by circular bodies; the centre of each contains blood-vessels and tissues in various stages of degeneration. The tissues are infiltrated with cholesterol; in some tumours this substance is so abundant that the mass gleams like mother-of-pearl; they are often called in consequence cholesteatomas and xanthomas (sand-tumours). These tumours do not so effectually blockade the ventricle as papillomas occupying the fourth ventricle, but they lead to grave and fatal consequences.

There is a rare variety of tumour which arises from the infundibulum and blocks the inter-ventricular communication by pressure on the corpora quadrigemina (Fig. 5). The tumour, which equals a walnut in size and in shape, grows from the fundibulum and bulges into the third ventricle. The hypophysis preserves its size and shape, but is intimately associated with the tissue of the tumour. The third and the lateral ventricles of the brain are much dilated because of the accumulation of cerebro-spinal fluid. The obstruction is caused by the pressure of the tumour on the corpora quadrigemina closing the aqueduct of Sylvius.

Tumours of the infundibulum have been reported by Erdheim (1904) and Strada (1911). They have a peculiar structure and resemble very closely that of an epithelial tumour, but for the moment I am mainly concerned with the manner in which these tumours interfere with inter-cerebral communications and also set up curious symptoms, some



Hypophyseal-duct tumour. The brain in sagittal section. The infundibulum is replaced by a tumour which pressed on the quadrigeminal bodies, closed the Sylvian aqueduct, and led to distension of the lateral and third ventricles. Semi-diagrammatic. (Museum of the Middlesex Hospital.)

Complete obstruction of the inter-ventricular communication, in children and adults, is as inimical to life as complete obstruction of both ureters.

¹ THE LANCET, 1881. i., 545.

² Human Anatomy, 1896, p. 608.

BED ISOLATION AND THE CONVEYANCE OF INFECTION WITHIN A WARD.¹

By FREDERIC THOMSON, M.B.,
C.M. ABERD., D.P.H.,

MEDICAL SUPERINTENDENT, NORTH-EASTERN HOSPITAL, LONDON.

My object in writing this paper was twofold. First a hope that it would lead to considerable discussion, and so help to elucidate the ways in which infection may be carried from one person to another within a ward. My second object was to sound a note of caution, for conclusions have been deduced from published results which, in my opinion, are unwarrantable and even dangerous.

I will quote the following expression of opinion referring to "bed isolation" in a leading article in THE LANCET of August 19th, 1922. It is as follows:—

"But a high standard of ventilation and of conscientiousness in nursing are of value in themselves, and the extra time and attention seem but a small price to pay for a system which makes it possible for any sanitary authority to treat within small compass all the infectious cases in the area which need special care. The experimental stage is past and the time has come for general reform along the same lines."

I am not clear whether the writer of these words considered that small-pox did not require special care, that it could be safely treated in a "bed isolation" ward, or that it was not an infectious disease. Doubtless he would say he did not mean to include small-pox, but there can be no doubt that he did mean to include chicken-pox, measles, and other infectious diseases. Even with that modification I imagine there will be few who are experienced in these diseases who would accept the statement, and I think most would regard it as altogether too sweeping.

Before speaking of "bed isolation," I think it necessary to consider briefly in what manner infection is supposed to be transmitted within a ward. In days gone by the dangers of infection were greatly exaggerated, and when I say this I refer only to expert opinion, for even now one finds medical men of high standing in their own particular branch of medicine or surgery who do not at all like the idea of even visiting a fever hospital, apart altogether from entering a fever ward. To go back only 40 years, and to take scarlet fever as an example, it was held that infection might occur from contact, from being in the same room, in the same house, or even in the neighbourhood of the house in which the sufferer was resident. Advancing to the year 1896 we find Goodall and Washbourn saying that the contagion of scarlet fever, measles, variola, varicella, and typhus fever is commonly conveyed through the air. The interesting suggestion is also made that some bacteria through their minuteness are more readily conveyed by air than others.

Avenues of Infection.

At the present time it is more or less agreed that the most common mode of infection is direct or indirect contact. Some of us scoff at the aerial conveyance of infection, and some would even call droplet infection infection by indirect contact. Then we are told that droplet infection is dangerous only in the immediate surroundings of the infector, that it is all a question of virulence and dosage, though a small dose will infect some while others require a larger one. We are agreed, I suppose, that flies or other insects may convey infection from one patient to another, though it would seem from the experiments in "bed isolation" that this seldom occurs.

On the subject of air-borne infection there is obviously great difference of opinion, some considering it common, some considering it uncommon yet admitting it to be possible for short distances, while

others appear to disbelieve in its occurrence. Apparently I have been regarded as a believer in air-borne infection by those who seem to regard droplet infection as infection by indirect contact. It has been my custom to consider coughing and sneezing at close range as contact infection, and a mass of mucus the size of a split pea can be coughed from a tracheotomy tube a matter of five or six feet. I have, however, regarded droplet infection as air-borne infection, and one cannot say how far droplet infection sufficient to amount to infect can be conveyed. We are told by some that the distance is limited to the immediate surroundings of the infector, but I can find nothing to guide me as to what that really means. During Dr. M. H. Gordon's investigation concerning the ventilation of the debating chamber of the House of Commons he recovered infected plates 50 ft., 61 ft., and one at the roof 71 ft. away from the individual who endeavoured to broadcast the *Bacillus prodigiosus* by speaking. These were, of course, the greater distances, and it does not follow that a dose sufficient to infect could be carried these distances. But, on the other hand, it can be conceived that under favourable conditions this might happen.

I infer the droplet to be invisible, that if it alights on one's mucous membranes or skin the contact is not felt, and that it can be propelled a greater distance than the infector than the plug of mucus I have referred to. If it struck an air current it would seem reasonable for conveyance to be somewhat further, and then if it became attached to a minute floating fragment of cotton-wool it would travel an even greater distance. If it hit a fly the fly might convey it a considerable distance, perhaps to a patient's lips, if it hit the finger of a nurse the same might happen. I take it all these things, and more, are possible, but that salvation comes in the fact that as the droplets are propelled into space none of them is likely to occur with any frequency. I have a leaning towards the suggestion of Goodall and Washbourn, made 27 years ago, that the minuteness of the microbe may have something to do with the distance infection is conveyed, since the smaller the droplet the further it might be carried. It is, I presume, a possibility that a droplet could contain a sufficient dose of certain infectious diseases, and that a dwarf droplet could contain a potent dose of others. Further, that in certain stages of some of the infectious diseases may be possible for droplets to be potent enough to convey infection. Therefore, to my mind it would be wise to defer judgment of the distance infection can be air-borne in a ward until we have information upon which we can rely, and I submit that we have not yet obtained that information.

Literature of Bed Isolation.

Doubtless "bed isolation" is being, or has been carried out at hospitals of which I am unaware, but I propose referring to the work of Drs. J. Biernacki, F. G. Crookshank, E. H. R. Harries, D. MacIntyre, and C. Rundle. Also I would like to include my own work, since, although that was carried out to gain as much possible, more information about the mode of conveyance of infection, yet the methods adopted in the ward were those of "bed isolation." I am unaware of the details of the work of Drs. Biernacki and Harries and possibly they have not been published. Dr. Crookshank and Rundle give some information, unfortunately do not give sufficient for others to deduce from with accuracy. On the other hand, Dr. MacIntyre is careful to supply information, and I have endeavoured to do the same.

All I can find about Dr. Biernacki's work is contained in Dr. MacIntyre's article in THE LANCET of August 19th, 1922, where we are informed that between 200 and 300 cases during two years and that the cross infections were one of scarlet fever and two of chicken-pox. Dr. Crookshank treated 120 cases of scarlet fever and 73 of diphtheria in wards, and he also treated enteric fever, erysipelas, measles, rubella, cerebro-spinal meningitis, tuberculous meningitis, puerperal fever, whooping-cough, tonsillitis.

¹ The opening paper read at a meeting of the Infectious Diseases Group of the Society of Medical Officers of Health on May 25th, 1923.

and other diseases, but I am unaware of the numbers. He had no cross infections. Dr. Rundle has treated 348 cases in his ward, and cross infection arose twice from scarlet fever and once from chicken-pox. Dr. MacIntyre treated 482 cases and cross infection arose three times from scarlet fever, once from whooping-cough, and three times from measles. Dr. Harries tells us in a letter to THE LANCET of Sept. 2nd, 1922, that he has treated 800 cases in about two years, and that on two occasions chicken-pox cross-infected and that subsequent cases appeared in the ward. He had no cross infection from measles and one from scarlet fever. I treated 497 cases, and two patients contracted scarlet fever, one mumps, five whooping-cough, one measles, and 15 chicken-pox. Table I. shows the figures:—

TABLE I.—Cross Infections.

Name.	Total cases.	Scarlet fever.	Measles	Chicken-pox.	Whooping-cough.	Mumps.
Biernacki ..	250	1	—	2	—	—
Harries ..	800	1	1	2*	—	—
Rundle ..	1348	2	—	1	—	—
MacIntyre ..	482	3	3	—	1	—
Thomson ..	497	2	9	15	5	1
Total ..	3377	9	13	20	6	1

* Dr. Harries says subsequent cases of chicken-pox arose in his ward, so I am unaware of the actual number of cross infections. He also says he gave up introducing chicken-pox in the early convalescent stage into his ward.

I have excluded the figures of Dr. Crookshank from the table as I am unaware of the total number of cases treated, and as I found no mention of chicken-pox. I have taken Dr. Biernacki's figures at a total of 250 cases in place of between 200 and 300 as given. The table is intended to show the number of bed-isolated patients only, and the resultant infections in so far as can be found. Since, as far as I know, there are no details about the work of Drs. Biernacki and Harries, Table II. is based on the results of Drs. MacIntyre and Rundle and my own only:—

TABLE II.

A = No. of cases. B = Infections.

Name.	Total cases.	Scarlet fever.		Measles.		Chicken-pox.		Whooping-cough.		Mumps.	
		A	B	A	B	A	B	A	B	A	B
MacIntyre ..	482	207	3	48*	3	26	—	25	1	2	—
Rundle ..	1348	141	2	162	—	93	1	48	—	6	—
Thomson ..	497	256	2	2	9	63†	15	75‡	5	23	1

* Includes cases infected in ward.

† Includes nine ditto.

‡ Includes two ditto.

It will be seen from Table II. that the number of scarlet fever infections is not so very different at each hospital, if one takes into consideration the number of cases of the disease admitted to each ward, and that it might be taken as offering some evidence that the technique in all these wards was about equally good. On the other hand, the evidence does not point in the same direction with regard to chicken-pox, measles, and whooping-cough. It would seem from Dr. Rundle's experience that the danger of cross infection from scarlet fever is greater than from measles, while in mine the cross infection from measles might well be considered disastrous.

Variation in Cross Infection.

An explanation, however, of these somewhat remarkable variations in cross infection at these three hospitals is very necessary, and I am disposed to believe that the chief, though not the only, explanation lies in the stages at which the diseases were introduced into the wards. Difficulty in argument arises here,

since the details supplied by Dr. Rundle are rather barren. He does not state the stage of the disease upon admission to the ward, the age-periods of his ward population, or the number of patients who were protected or unprotected. However, he states in his first published series of cases that out of a total of 42 cases of measles introduced into his ward 29 were convalescent, and out of a total of 41 cases of chicken-pox 12 were convalescent. Further, in recording his first series he tells us that a high percentage of adults was admitted. In his first series 288 cases of erysipelas, puerperal fever, and enteric fever were treated, giving a percentage of 38 of the total number of cases. In his second series full figures are not given, but evidently the percentage was lower.

There can be no question of Dr. Rundle's wisdom in attempting to lessen the danger of cross infection arising in his ward until knowledge justified taking greater risks, and indeed very great praise is due to him for his work. Now, however, that "bed isolation" has proved to be of some considerable success, it seems to me essential that it should be put thoroughly to the test before hailing it with acclamations. Further, it is also essential that all available details of the work should be published in order that others may form a reasoned judgment of the precise opportunities which existed for cross infection to arise.

If one considers the infections with which fever hospitals are most concerned—and I take these to be scarlet fever, diphtheria, measles, chicken-pox, rubella, whooping-cough, and mumps—and compares the number of these diseases with the total cases treated, one finds they comprised 43.5 per cent. of all diseases in Dr. Rundle's ward, in Dr. MacIntyre's 77 per cent., and in mine 86 per cent. As a point having some bearing on the stage of the disease at which infections were introduced into the "bed isolation" wards at these hospitals, it is of interest to note that in Dr. Rundle's ward two or more co-existing infections were present on 26 occasions only out of 1348 total cases, in Dr. MacIntyre's on 123 occasions out of 482 cases, and in mine on 143 occasions out of 497 cases. In Dr. Rundle's ward chicken-pox was co-existent with another infection seven times out of 93 cases, in Dr. MacIntyre's ward it co-existed 23 times out of 26 cases, and in mine 53 times out of 63 cases. The broad deduction from this is that very many more infections were introduced into the "bed isolation" ward from other wards in the hospital in the instances of Dr. MacIntyre and myself than in that of Dr. Rundle. To my mind this suggests that Dr. Rundle's "bed isolation" ward is fed mainly by direct admissions from outside the hospital, and it is hardly to be expected that infections from outside would be in as early a stage of the disease as those obtained from within the hospital.

I do not wish to discuss the chances of whooping-cough cross-infecting, because I quite failed to understand why infections from this disease arose in my ward, all of them during two short periods, while in a vastly longer time equal opportunities for cross infection appeared to exist without its arising. It may have been at times of a rising epidemic wave, but of that I have no particulars. I did not consider it desirable to introduce cases of measles into my ward, but two cases were admitted while incubating this disease, and both were immediately removed when evidence of measles arose. The first case infected five patients out of 11 in the ward (Fig. 1), and subsequently two tertiary infections arose. The four remaining patients all had a previous history of measles. The second case infected two others out of 11 in the ward, of whom six had a previous history of measles and five had not. These two utter failures to stop the transmission of the infection of early measles cannot be passed over without comment. If contact infection be the explanation, then the nursing must have been very bad indeed, and from my knowledge of the way in which the nursing was conducted such a lapse seems to me inconceivable. Further, had the nursing been in a state of chaos, how

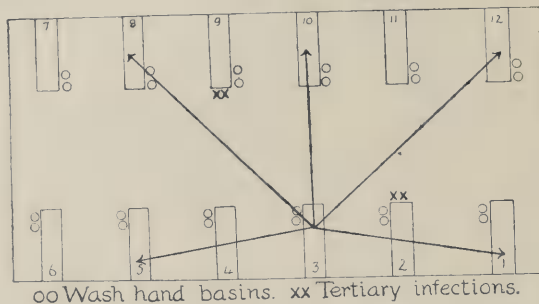
comes it that other infections also present were not conveyed by contact?

Dr. Harries, in his letter already referred to, tells us that a case of measles admitted to his ward in the incubation stage initiated cross infection. Dr. MacIntyre records that when measles cross-infected in his ward several cases had been admitted three days before the eruption appeared. It would be interesting if he could tell us whether any of his cross infections were held attributable to these early introductions.

Infecting Power of Chicken-pox.

In my ward the infecting power of chicken-pox was the subject which interested me more than any other,

FIG. 1.



Showing striking distance of measles infection. Length of ward, 90 ft.; width of ward, 26 ft.

and it seems to me that chicken-pox is the ideal disease by which to test the value of "bed isolation." At its commencement it is very infectious; it is usually possible to tell with considerable accuracy whether the patients exposed are protected, for a history of a previous attack is almost always correct, though often this information is not forthcoming, but it is usually possible to find the scars if the individual has suffered from chicken-pox in the past. Further, should cross infection unfortunately arise there is no danger to life and, as a rule, but slight illness.

In so far as I am aware the average number of children in a population protected by former attacks is unknown, although some records have been worked out on history only. Dr. MacIntyre found that 26 per cent. of the cases admitted to his ward had a previous history of chicken-pox, while in my ward the percentage was 25.73. However, a history only does not disclose the number of protected with much accuracy. Every case admitted to my ward was carefully examined for chicken-pox scars, and it was found that 40.85 per cent. were protected, that 55.98 per cent. were unprotected, and that 3.16 per cent. were doubtful. Those who were admitted suffering from chicken-pox are not included in these figures, and they are therefore worked out on 443 cases. It would be interesting to know how the protection rate rises from year to year up to about 10 years of age, and Fig. 2 is an attempt to show this rise. Evidently a considerably greater number of cases would be required to show this with accuracy, for the slight rises shown at the ages of 4 to 5 and 6 to 7 can hardly be correct, and there were few patients over 9 years of age introduced into the ward. It was, in fact, my policy to introduce children into my ward at the more susceptible ages, and the age-periods of all patients were—under 5 years 52.11 per cent., 5 to 10 years 45.07 per cent., and over 10 years 2.81 per cent. The age-periods in Dr. MacIntyre's ward were—under 5 years 46.47 per cent., 5 to 10 years 40.45 per cent., and over 10 years 13.07 per cent. If at the age of 6 half the child population is protected from chicken-pox, it is a matter of the first importance to know the ages of the population in a "bed isolation" ward before conclusions of any value can be drawn.

In all the "bed isolation" wards with which I am dealing cross infection arose from chicken-pox. At Plaistow it spread to other patients on two occasions

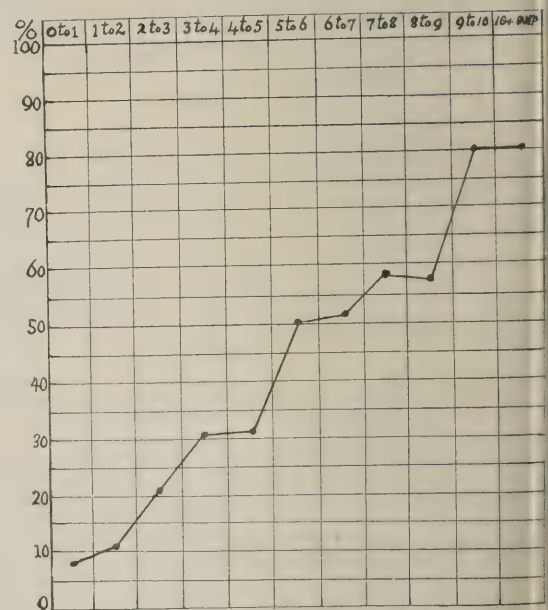
in Dr. Biernacki's time, at Fazakerley one patient developed chicken-pox, at Birmingham it cross infected on two occasions, and subsequent cases appeared in the ward, and at the North-Eastern Hospital 15 children developed the disease. Particulars of the infectors at Plaistow and Fazakerley are wanting, but Dr. Harries tells us that his two cases at Birmingham were admitted to the ward in the incubation stage.

Diminished Danger of Infection On and After Third Day of Eruption.

Sixty-three cases of chicken-pox were treated in my ward, and of these nine incubated the disease in the ward, three were introduced on the first day of the eruption, four on the second day, 31 on the third day, seven on the fourth day, and nine on and after the fifth day. Of those who incubated the disease in the ward two arose together on separate occasions, making the actual number of exposures to this early infection seven. Of these seven exposures, five were responsible for cross infection. Of the two who failed to cross infect the first was in the ward when only three unprotected cases were present and all had already been exposed to a similar early case. The other was in the ward when six unprotected cases were present but they also had already been exposed to a similar early case. Of the three admitted on the first day the eruption one was productive of cross infection of the four admitted on the second day three cross infected, and of the 31 admitted on the third day three cross-infected. No cases of cross infection arose after the third day. For the days and distance of infection, see Figs. 3, 4, 5, and 6.

Dr. MacIntyre treated 26 cases in his ward. Of these, three were admitted on the first day of the eruption, five on the second day, two on the third day

FIG. 2.



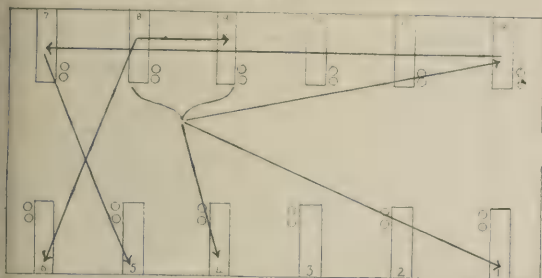
Ward population: percentage of protection by former attack of chicken-pox in 443 patients at ages as set out (excluding 54 cases of chicken-pox introduced).

three on the fourth day, and 13 on and after the fifth day. He had no cross infection. Therefore, of cases of chicken-pox about which particulars are available, nine who incubated the disease in the ward cross-infected seven times, the six on the first day, the nine on the second day three times, the 33 on the third day three times, while the ten on the fourth day and the 22 on and after the fifth day failed to cross-infect. Dr. MacIntyre tells us that

the majority of his cases the pocks were painted daily for the first three days with a solution of picric acid. Also I think it necessary for me to say that the first 20 of my third-day cases passed through the ward without any infection arising, and that the three third-day infecting cases were all introduced during the last six months of the work, when it was becoming increasingly difficult to find suitable nurses owing to depletion of them for war purposes. I mention that point, but it is also to be borne in mind that by that time I had taken to introducing some cases early on the third day of the eruption.

It is worthy of note that ten fourth-day cases and our fifth-day cases passed through these two wards without cross infection arising, and that, from my own

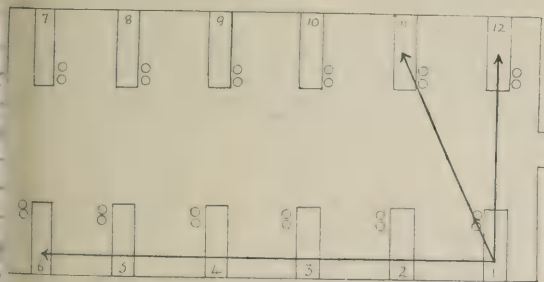
FIG. 3.



Infections incubated in ward which infected others grouped together, showing striking distance of chicken-pox. 8 and 9 (bracketed) arose together. Length of ward, 90 ft.; width, 26 ft.

work on the contact infection of chicken-pox, it is early shown that contact infection of this disease can take place on the fifth day of the eruption, the contact at that occasion seeming to be indirect. It is, then, a fact that chicken-pox when introduced into a "bed isolation" ward in the incubation stage or in the early days of the eruption can cause infection in others. Further, there seems good reason to suppose that the disease is considerably more infectious if introduced before the eruption appears, and is present up to the time of outcrop of the eruption. It also seems probable that the danger of infection, if there is then danger, is greatly lessened if the case is introduced on

FIG. 5.



Second day infecting cases grouped together, showing striking distance.

the third day of eruption, and that after the third day the danger seems to cease. Why is it that the danger of infection on the third day seems small and the danger before or at the outcrop of the eruption so great?

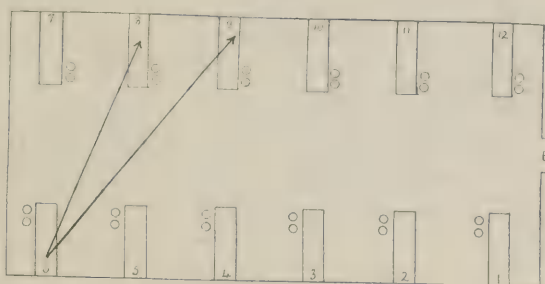
In a paper read before the Epidemiological Section of the Royal Society of Medicine in 1912, Dr. Rundle gives as follows in favour of contact infection:—

Forty-one cases of varicella have received treatment in our 'bed isolation' ward; no instance of cross infection occurred. On the other hand, varicella has been accidentally introduced into the ordinary wards of the hospital on 21 occasions during the same period of time; cross infection occurred in every instance except one. Precisely the same

opportunities of aerial infection were present in each group of cases. How then are we to explain the striking difference in the results obtained, except on the grounds that contact infection was excluded in one series of cases only? All stages of the disease and all grades of severity have been represented in the 41 cases mentioned—in fact, more than one of them were, from the confluent character of the eruption, sent to the hospital on a mistaken diagnosis of small-pox."

I do not suppose Dr. Rundle would care to maintain that argument now. I imagine that on the 21 occasions when chicken-pox was introduced into the ordinary wards, all, or nearly all, were probably introduced before the outcrop of the eruption, while of the 41 cases in the "bed isolation" ward I do not suppose one was. If it is all a question of contact

FIG. 4.



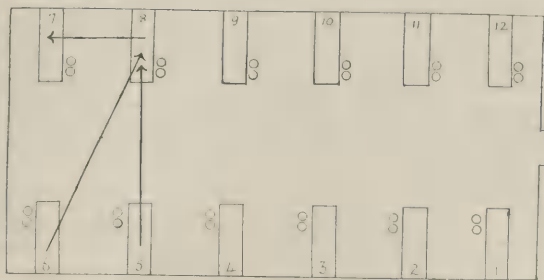
First day infecting case, showing striking distance.

infection, how comes it that seven out of nine cases introduced in the incubation stage cross-infected, while 14 on the fourth and fifth days of the eruption did not? Very possibly the chances may be less, but we know they exist, and such a striking contrast seems to require a more satisfactory explanation than contact infection.

Cubicle and Cell Wards.

Then we have evidence that it is unsafe to treat chicken-pox in cubicle and cell wards which have internal means of communication between the cubicles or cells. I have had experience of three

FIG. 6.



Third day infecting cases grouped together, showing striking distance.

cubicle and two cell wards, all with internal corridors, for 17 years, and I have found it unsafe to introduce into any of them chicken-pox in its earliest stages. I have found that if a patient incubates the disease in a cubicle ward cross infection is usual, and that cross infection under similar circumstances is not uncommon in cell wards. On the other hand, I have a ward with single rooms, the door of each opening to the outer air on to a verandah, but with no internal communication between the rooms. This ward is used for the treatment of chicken-pox as well as other diseases, and a large number of chicken-pox cases have passed through it, many of them incubating the disease there, but cross infection to other rooms

has been very rare. The opportunities for contact infection in this ward are as great as in my cubicle or cell wards, or as they were in the bed isolation ward, but there is all the difference in the resultant cross infections. Personally, I consider it wise to remember that our knowledge of the manner in which infection is transmitted from one person to another in a ward is incomplete, and that it is unwise to speak of infection being conveyed by contact only, or by droplets in the immediate surroundings of the infector.

Conclusion.

In my experience "bed isolation" can do a great deal in the prevention of cross infection, and in certain circumstances is a most useful method of isolation. But the statement of THE LANCET that "bed isolation" is a system which makes it possible for any sanitary authority to treat within small compass all the infectious diseases in the area which need special care, leaves me lost in wonder. It is a statement which might well be made effective use of by lay councillors, to evade the provision of proper isolation accommodation, and in the light of our present knowledge is unjustifiable.

Before concluding, I would like to refer to the interesting work of Drs. A. F. Cameron and B. A. Peters, on aseptic nursing in a general fever ward, and to express a hope that we may hear more about that method of lessening the danger of cross infection.

THE TREATMENT OF DIABETES MELLITUS WITH INSULIN

AND CARBOHYDRATE RESTRICTION.

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THE introduction of insulin in the treatment of diabetes mellitus has raised many new problems, and among them that of the best method of using it. Most of the work has been done on patients with a severe form of the disease, since if good results can be obtained with them it is certain that equally good results will be obtained with patients who have only a mild form of the disease.

Two severe cases and one milder one have been treated in the wards of the Medical Unit at St. Bartholomew's Hospital, and have all been investigated according to the following plan. A diet was given consisting almost entirely of protein and fat, but including 16 g. of sugar in the form of vegetables; the caloric value varied according to the condition of the patient. A dose of insulin was given once a day, or very occasionally twice a day. No extra carbohydrate was given until the blood-sugar before the insulin injection had been below 0.12 per cent. for a considerable number of days.

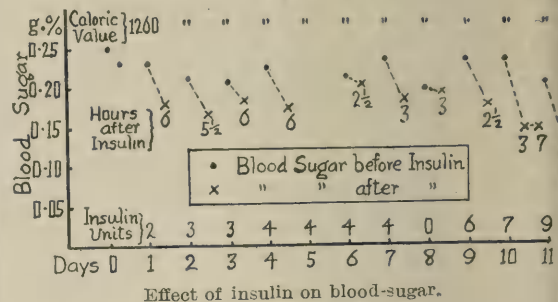
Clinical Records.

CASE 1.*—A man, aged 26, who had diabetes for three years and had become steadily worse in the last year in spite of careful treatment on modern lines. In December, 1922, he was admitted to this hospital, under the care of Dr. H. Morley Fletcher, being very ill with some symptoms of impending coma. However, he improved considerably under treatment with starvation and gradual increase of food (no added carbohydrate) but always passed sugar in the urine. After four weeks he was discharged as a hopeless case, but was readmitted to the wards of the medical unit, under Prof. F. R. Fraser, as a suitable subject for the trial of insulin.

In spite of two hunger days, two egg and vegetable days, and two more hunger days, he continued to pass a small amount of sugar in the urine and the blood-sugar on the morning after the fourth hunger day was still 0.20 per cent. The diet was then gradually increased up to protein 53.2 g.,

fat 109.5 g., and 16 g. sugar in the form of vegetables; caloric value 1260. The amount of sugar excreted varied between 25 and 33 g. per day, although the total sugar available in the diet was 16 g. from the vegetables and 27.5 g. from protein = 43.5 g. The amount of aceto-acetic acid varied from 1.0 to 1.6 g. reckoned as acetone. The blood-sugar at about 9 A.M. varied between 0.25 per cent. and 0.20 per cent. This preliminary period of observation lasted

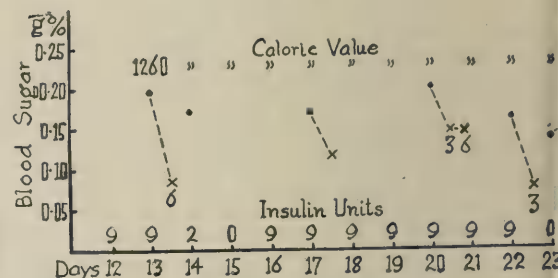
FIG. 1.



Effect of insulin on blood-sugar.

for 16 days. The insulin was usually given about 9 A.M. immediately after the morning blood-sugar had been collected. The initial dose given was only 1 1/2 units (no style) and was gradually increased up to 9 units. The dose always caused some fall in the blood-sugar (Fig. 1), but the first time the urine was only free from sugar from 12 noon to 3 P.M., then from 12 noon to 6 P.M., and after 11 days the urine passed at 6 A.M. only contained a trace of sugar, though

FIG. 2.

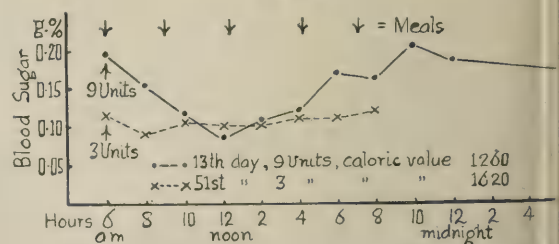


Effect of insulin on blood-sugar.

the urine from 6 A.M. to 9 A.M. still contained a little sugar. On the twelfth day no sugar was excreted at all, and more sugar was excreted except once, when no insulin was given for two days, and once when he had a swollen leg after the injection of some insulin which had become infected and was given in error (Fig. 2).

On the thirteenth day the blood-sugar was estimated two-hourly intervals throughout the day and part of

FIG. 3.



Fall of blood-sugar after 9 units on thirteenth day and after 3 units on fifty-first day.

following night (Fig. 3). The usual meals were eaten at 6 A.M., 9 A.M., 12 noon, 4 P.M., 7 P.M. The fasting value of the blood-sugar was 0.195 per cent. and 9 units of insulin were injected immediately after the blood had been collected. The blood-sugar fell to 0.085 per cent. after six hours, was still at 0.12 per cent. 10 hours after the injection, had risen to 0.17 per cent. after 12 hours and to 0.20 per cent. after 16 hours, but fell to 0.185 per cent. at the eighteenth hour, while at 6 A.M.—i.e., 24 hours after

* Case E. Report to Medical Research Council.

dose—it had fallen to 0.17 per cent. Only 0.38 g. aceto-acetic acid (as acetone) were excreted instead of 1.6 g. before the insulin was started. The aceto-acetic acid was estimated every two hours, and the hourly output fell abruptly after the insulin injection, but rose again as soon as the blood-sugar rose above 0.17 g. (Fig. 4).

There are two points of great importance in this experiment: (1) The time taken (6 hours) in reaching the lowest point, and (2) the fact that the maximum

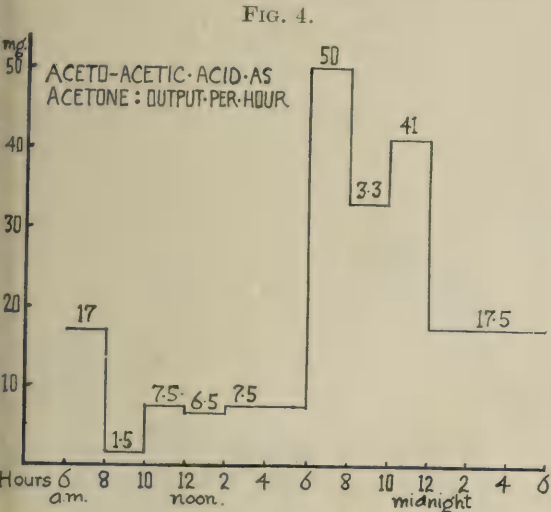


FIG. 4. Showing hourly output of aceto-acetic acid as acetone after 9 units of insulin on thirteenth day.

se in the blood-sugar took place 16 hours after the use of insulin. Presumably all the effect of the insulin had passed off by this time, as the aceto-acetic acid output had increased at the fourteenth hour, and the patient was then left to work with that which could produce himself. (3) That the blood-sugar increased from the sixteenth hour to the twenty-fourth hour, when it is probable that the patient was dependent on his own insulin. In view of this result we decided to make no alteration in either the diet or the dose of insulin in order to see whether the morning value of the blood-sugar would continue to increase.

On the thirtieth day the morning value of the blood-sugar reached 0.15 per cent. for the first time and remained about

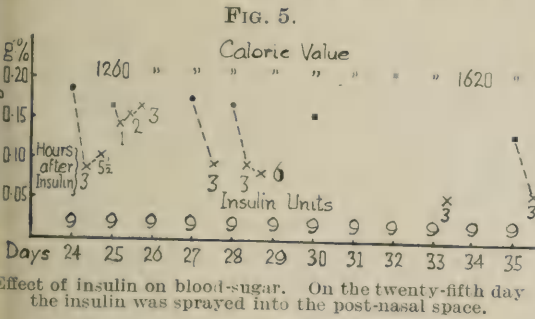


FIG. 5. Effect of insulin on blood-sugar. On the twenty-fifth day the insulin was sprayed into the post-nasal space.

s level for the next two days (Fig. 5). On the thirty-fourth day 50 g. of butter were added to the diet, making a caloric value of 1620. On the thirty-fifth day the dose of insulin was reduced to 3 units, as 9 units had lowered the blood-sugar to 0.06 per cent. three hours after the injection. The morning blood-sugar again rose above 0.15 per cent., so the dose was increased to 8 units on the fortieth day (Fig. 6). On the forty-seventh day the morning blood-sugar had fallen to 0.12 per cent., and the dose was again reduced to 3 units. On the fifty-first day the blood-sugar was again estimated at two-hourly intervals throughout the day (Fig. 3). The morning blood-sugar was 0.115 per cent. and was not detected above 0.12 during 14 hours. On the fifty-second day 25 g. of meat and 25 g. of bacon were added to the diet—caloric value 1838—without causing any appreciable increase in

the blood-sugar. On the sixty-third and six subsequent days no insulin was given, and the morning value of the blood-sugar varied between 0.105 and 0.125 per cent. On the sixty-eighth day (Fig. 7) it did not vary more than from 0.10 per cent. to 0.13 per cent. when the blood was collected at two-hourly intervals throughout ten hours of the day. Since the morning value of the blood-sugar had now been

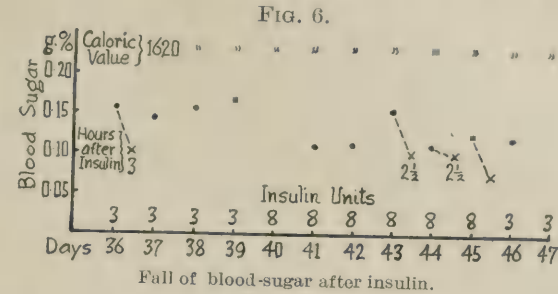


FIG. 6. Fall of blood-sugar after insulin. at a normal level for 18 days and during the last six days no insulin had been injected, it was thought justifiable to add bread to the diet and still withhold the insulin. Therefore 10 g. of bread were given on the sixty-ninth day and the blood-sugar was estimated at 30-minute intervals. No rise was observed in two hours, and the same was the case after 20 g. On the seventy-third day 40 g. of bread were given (Fig. 8), and after this amount the blood-sugar rose from 0.11 per cent. to 0.17 per cent. after 60 minutes, and after 90 minutes was still 0.165 per cent. On the seventy-fourth day 8 units of insulin were given 30 minutes before the 40 g.

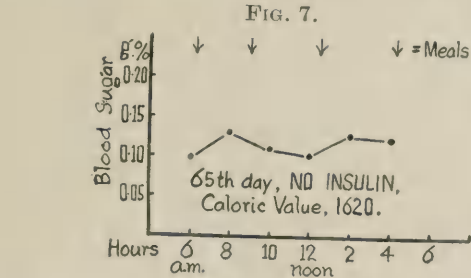


FIG. 7. Blood-sugar on sixty-fifth day, when no insulin was injected.

of bread. The blood-sugar was 0.16 per cent. after 30 minutes, but had fallen to 0.145 per cent. after 60 minutes; it was still at this level after 90 minutes, but had fallen to 0.12 per cent. after 120 minutes. Since this rise is greater than that which occurs in normal individuals after this dose of bread, it was decided to give 8 units of insulin each day 30 minutes before the bread was eaten. On the seventy-eighth day the caloric value of the diet was increased to 2020 by the addition of 25 g. of ham and 100 c.cm. of milk. On the eightieth day the blood-sugar was estimated at 30-minute intervals after the 40 g. of bread but no rise was detected, although no insulin had been injected (Fig. 8).

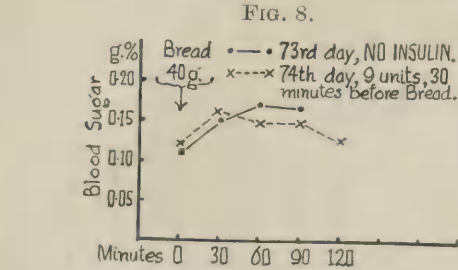


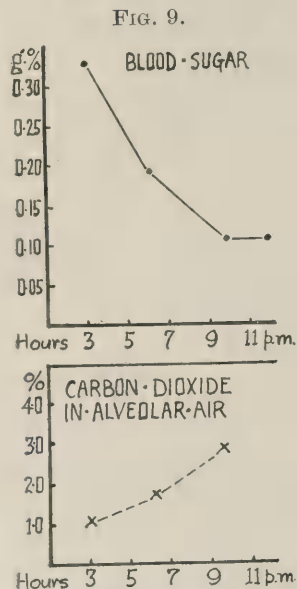
FIG. 8. Effect of blood-sugar after 40 g. bread on different days.

The bread was therefore increased to 80 g. by 10 g. doses, and 8 units of insulin injected daily. On the eighty-seventh day (Fig. 8) no insulin was given, but no sugar was excreted after 80 g. bread. On the ninety-eighth day a dose of 25 g. of sugar (no insulin) sent the blood-sugar up to 0.18 per cent. after 60 minutes, and at the end of 120 minutes it was still at 0.20 per cent. No sugar was excreted in the urine in the first hour, but 0.9 g. was excreted in the second

hour. This last experiment shows that although a big recovery of tolerance has taken place, the sugar tolerance is still low.

The patient's general condition has greatly improved. He has been kept in bed all the time, as is our usual custom, partly because patients with severe diabetes do better if they are at rest in bed, and partly because it is much easier to control the diet of a patient in a general ward, since it reduces the risk of a patient adding carbohydrate to the diet. The actual gain in weight is rather difficult to assess, since, like many patients with very severe diabetes, he developed a great deal of oedema, gaining 13 lb. in ten days just before the insulin was started. Since he lost the oedema and settled down to a steady weight he has gained 6 lb. Both the knee- and ankle-jerks were completely absent on admission, but they have all returned now.

CASE 2.†—A man who had had diabetes for over three years was admitted to hospital under Dr. J. H. Drysdale in a condition typical of diabetic coma except that he was just conscious. He complained of severe abdominal pain and the eyeball tension was very low. There was well-marked air hunger and the movements of the abdomen and chest were extreme. The percentage of carbon dioxide in the alveolar air was 1.18 instead of over 5 per cent. and the blood-sugar was 0.33 per cent. A dose of 15 units of insulin was given, and three hours later the blood-sugar had fallen to 0.19 per cent. and the alveolar carbon dioxide

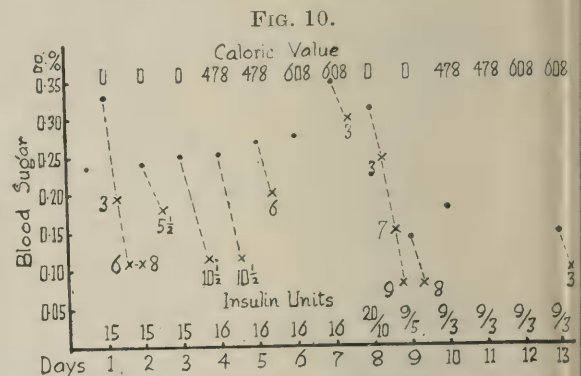


Fall of blood-sugar and rise of alveolar carbon dioxide in a case of diabetic coma after 15 units of insulin.

had risen to 1.7 per cent. The general condition had greatly improved; the abdominal pain had disappeared and the air-hunger was noticeably less. In six hours the blood-sugar had fallen to 0.11 per cent. and the alveolar carbon dioxide had risen to 2.7 per cent. (Fig. 9). We were prepared to give sugar, together with another dose of insulin as well, if the patient's condition had not improved so rapidly. The amount of sugar excreted between 12 noon and 10 P.M. was 18 g. and the night urine contained no sugar. The amount of aceto-acetic acid excreted in the same period was 0.7 g. and was very small in amount in the night urine. The usual treatment for a severe diabetic was given in the next few days, together with 16 units of insulin. During the two hunger days and two egg and vegetable days—caloric value 478—the morning blood-sugar was between 0.23 and 0.27 per cent. (Fig. 10), but when 50 g. of meat were added—caloric value 608—the morning blood-sugar rose to 0.35 per cent. Consequently on the eighth day another hunger day was given, together with 20 units of insulin in the morning and 10 units at 4 P.M. The blood-sugar fell to 0.08 per cent. in nine hours and had not risen above 0.14 per cent. the next morning; no sugar was excreted in the urine the next day and there has been none since. On the ninth day a hunger day was also given together with 9 units of insulin in the morning and 3 units at night. On the tenth and eleventh days, eggs and vegetables (no butter) were given—caloric value 478—together with 9 units in the morning and 3 units at night. On the twelfth day 50 g. of meat were added—caloric value 608—and on the fourteenth day the morning blood-sugar was 0.125 per cent. After this day only one dose of 8 units was given each day and the blood-sugar rose again to about 0.15 per cent. On the eighteenth day the diet was increased to 778 calories by means of ham, and on the twenty-first day to 900 calories by means of bacon; on the twenty-eighth day to 1264 by means of butter. The morning blood-sugar had remained about 0.15 per cent. all this time, and as it did not seem to be decreasing the dose of insulin was increased to 12 units; and on the forty-second

day the blood-sugar at last came down to a normal figure. The diet was increased to 1260 calories on the forty-second day and to 1838 on the fiftieth day. The blood-sugar is usually below 0.10 per cent. in the morning. On the seventy-second day a dose of 40 g. of bread (no insulin) sent the blood-sugar up to 0.17 per cent. after 60 minutes, and it was still at 0.165 per cent. after 120 minutes. No sugar was excreted in the urine in the first hour, but 0.2 g. was excreted in the second hour.

It is proposed to keep the diet free from extra carbohydrate for another 14 days and then gradually add bread, keeping the dose of insulin about 8 units.



Effect of insulin on blood-sugar. The dot indicates the blood-sugar before insulin, the cross indicates the blood-sugar after insulin. The numeral below or beside the cross represents the number of hours after the giving of insulin.

CASE 3.—This man had a much milder form of the disease as on the ordinary severe dietetic restrictions in use in this hospital he ceased to pass any sugar, and the morning blood-sugar was 0.16 per cent. on a diet of protein 53.5 g. fat 109.5 g., sugar as vegetables 16 g., calories 1260. The progress was at first unsatisfactory, as he became very anæmic, hæmoglobin 30 per cent., as the result of bleeding from hæmorrhoids. These were removed after a small blood transfusion of 300 c.cm. had been given. He stood the operation quite well, and is rapidly regaining strength. He has further complicated the experiment by adding unauthorised carbohydrate to his diet at odd intervals. In spite of these setbacks he now has a normal blood-sugar on a diet of protein 53.2 g., fat 149.5, sugar 16 g., calories 1622. It is proposed to add carbohydrate cautiously to the diet giving 8 units of insulin each day. The patient has twice had slight symptoms of over-dosage, as he sweated and felt very limp for about 30 minutes some three hours after a dose of 10 units of insulin. The blood-sugar was on 0.06 per cent., whereas both the other men have had a fall of blood-sugar to 0.05 per cent.

Remarks.

The treatment of these three patients with small doses of insulin on a diet of low caloric value and on 16 g. of sugar differs from that which has been used by Banting² and his co-workers and the other workers in this country.¹ The usual plan adopted has been to give insulin two or three times a day together with a certain amount of carbohydrate. The improvement which takes place in the clinical condition is very great under these conditions. The patient feels better and rapidly gains in weight and strength. Some of these patients do pass a little sugar each day before the insulin is given, and the blood-sugar may be considerably over 0.20 per cent. It seems certain from the previous work on experimental diabetes in dogs by Allen³ that the β cells of the islands of Langerhans, which control the level of the blood-sugar, can be overworked by overfeeding either with sugar or starch. Under these circumstances Allen showed by examining sections of the pancreas taken at frequent intervals that the β cells first lose their granules, then develop a vacuole; the nucleus is pushed to one side and the cell may break up altogether. If, however, the overfeeding with sugar is stopped, and the animal is starved, Allen is inclined to believe, although, as he says, it is very difficult to be certain, that the β cells may recover, the vacuole disappearing, and the granules reappearing.

† Case G. Report to Medical Research Council.

Further, the whole of the recent advances in treatment of patients by starvation or underfeeding has been based on the belief that in this way the β cells might be rested and allowed a chance to recover. The aim has been to reduce the fasting blood-sugar to a normal level. Hence it seems probable that whenever the blood-sugar is above 0.20 per cent. the β cells are being overworked. It is also probable that whenever the fasting blood-sugar is above 0.13 that there is some degree of overstrain. And it is also conceivable that the β cells may be working their utmost in order to keep the blood-sugar normal (0.12 per cent.) and are therefore overworking. The use of insulin will, however, enable the cells to be thoroughly rested for a long time, and if they are capable of recovering under these conditions there should be an increase in sugar tolerance. From our experiments it would seem that it is necessary to lower the blood-sugar below 0.10 or even 0.08 per cent. each day, so as to give no work to the β cells if possible. If this view is correct it is inadvisable to give any carbohydrate until the blood-sugar has been at a normal level for a considerable time.

It is still much too early to speak with any real certainty, but if the two patients in this series with severe diabetes keep well and continue to improve, and if other patients also behave in the same way, it would appear that, provided too much destruction has not taken place in the initial attack of the disease, there is some chance that the surviving β cells of the islands of Langerhans may recover their full activities. If this should prove to be the case, then it must mean there were a sufficient number of β cells which were only exhausted and not destroyed.

Banting, Campbell, and Fletcher state that certain cases, after a period of insulin treatment, recover such a degree of tolerance that insulin is no longer necessary to maintain them on their basal diet. Unfortunately, only one case is quoted and no figures for the blood-sugar are given. Still, this statement does support the experience which we have had so far.

Maclean,⁴ on the other hand, has stated that "in long-established cases he has seen no sign of increase of tolerance after insulin and should doubt whether in such cases much is to be hoped in this direction." Maclean has, however, used much larger amounts of carbohydrate—30–40 g.—in addition to the sugar in the vegetables. Further, he does not say in his paper that he aims at keeping the fasting value of the blood-sugar within normal limits. These are, we believe, essential points in the treatment, and may well account for the failure of Maclean's patients to recover sugar tolerance although their general condition was greatly improved.

In order to treat patients on the lines which we have used it is essential that a certain number of determinations of the blood-sugar should be made, though it will be quite unnecessary to do so many as we have done in learning the method. We suggest that the patient should be treated at first with the usual method of two days' starvation in order to get the urine sugar-free, if possible. Whether this is successful or not the diet should be gradually increased to about 1260 calories, made up of protein and fat, with 16 g. sugar in the form of vegetables. The blood-sugar should then be determined in order to gauge the dose of insulin required. If the blood-sugar is normal a dose of 5 units may be safely ordered for an adult; if it is higher than 0.13 per cent. a dose of 10 units can probably be given in safety. On the next day the morning blood-sugar should be determined (but this may be omitted), and the blood-sugar again determined four to six hours after the insulin injection. If the blood-sugar falls below 0.10 per cent. and no unpleasant symptoms occurred, it may be assumed that the dose is a suitable one. If the blood-sugar does not fall so low as 0.10 it is probably better to make no change for another seven days. Then the blood-sugar before and four to six hours after the injection should again be determined. If the blood-sugar has now fallen below 0.10 per cent. the dose may be considered as suitable.

If the blood-sugar has not fallen low enough the dose should be increased. Afterwards the blood-sugar should be determined before the insulin injection at least once a week or fortnight until it falls to normal. The dose should be diminished if any symptoms of overdosage occur, and in our limited experience if this method is employed no startling symptoms will appear. After the blood-sugar has fallen to normal the caloric value of the diet can be increased and bread gradually added. In severe cases the process of recovery of tolerance must be a slow one, but in mild cases it is to be hoped that it will be much more rapid, but of this we have no experience.

Insulin should not be regarded as a mere substitute (like thyroid extract for the treatment of myxedema) for that usually formed in the β cells of the islands of Langerhans, although it can be used in this way, and 10 units of insulin at the cost of 2s. 6d. will suffice for the correct usage of 20 to 30 g. of sugar. It should rather be regarded as a valuable remedy which will relieve the overworked β cells of as much work as possible and perhaps enable them to recover some of their functions.

It is with some diffidence that we have decided to publish a preliminary account of the method which we have been using, since we cannot report more than the early history of these patients, but the after-history will be reported later whether it be good or bad. Further, we may have been very fortunate in the patients we treated, and other patients with severe forms of the disease may not respond to treatment so well. However, we thought that it was justifiable to publish the method so that it may be tested by other workers.

Conclusions.

1. If our view is correct, and if the best possible results are to be obtained, it is unwise to give any carbohydrate at all, except that in vegetables, until the fasting value of the blood-sugar has been below 0.12 per cent. for some considerable time.

2. It would also appear from our figures that in order to produce this result the blood-sugar must fall well below 0.10 or even 0.08 per cent. each day in order to relieve the β cells of the islands of Langerhans of as much work as possible. It may be necessary to aid this by somewhat rigorous dietetic restrictions, as in Case 2, or it might be achieved by giving larger doses of insulin.

3. An advantage of our method is that only one dose of insulin a day is required, and the dose is much smaller.

4. The disadvantages are: (a) The comparatively slow progress of the patient; (b) the careful watching of the blood-sugar which is required, at any rate at the beginning of the treatment; (c) the necessity of lowering the blood-sugar each day below 0.10 or 0.08 per cent. and so running some slight risk of causing unpleasant symptoms if the blood-sugar falls too low; (d) the tendency of all patients with severe and long-standing diabetes under severe dietetic restrictions to steal carbohydrates and so delay the fall of the blood-sugar to normal.

We have to express our thanks to Prof. F. R. Fraser for permission to work on his patients and for his constant assistance; to the Medical Research Council for permission to make the insulin and for its grant towards the laboratory expenses; to Dr. H. H. Dale and Dr. H. W. Dudley for the full details of the manufacture and for much help; to Dr. W. H. Hurley, in whose laboratory the insulin was made, and for his advice and help with its manufacture; to the laboratory assistant, Mr. A. F. Colson, who has latterly carried out the manufacture of the insulin, and especially to Miss V. Etches, the ward sister, for her constant care in supervising the patients and their diet.

References.

1. THE LANCET, 1923, i., 905.
2. Banting, F. G., Campbell, W. R., and Fletcher, A. A.: Brit. Med. Jour., 1923, i., 8.
3. Allen, F. M.: Jour. Metabolic Research, Morristown, U.S.A. 1922, i., 1.
4. Maclean, H.: THE LANCET, 1923, i., 1039.

THE TECHNIQUE OF BLOOD-PLATE COUNTING IN MAN.

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A DIRECT count of blood-plates seems to be impossible owing to their disposition to adhere to one another and to foreign bodies, such as glass, when the blood is shed. It is therefore necessary to determine by a special procedure the proportion of red corpuscles to plates, and then, the red corpuscles having been counted in the usual way, to calculate the absolute number of plates. The large number of the methods that have been used by different observers testifies to their unsatisfactoriness and difficulty. The following method contains elements of various others, and is described because it has yielded the most consistent results; but it is well recognised that the ideal has not yet been reached.

Method of Puncture.

The best site of puncture for blood is the back of the finger proximal to the nail bed, where the skin is thin, and the tissue vascular yet firm; a thin layer of paraffin is left on this part by touching with a hot glass rod first a block of paraffin and then the finger. Two sharp surgical needles are first heated in their middle and then run through the edge of the paraffin block, so that the points are layered with paraffin yet do not have their temper destroyed in the flame. A droplet (of about 2 mm. diameter) of the diluent, freshly filtered, is then placed on the paraffined area of the finger. The composition of the diluent is as follows:—

Sod. metaphosphate ..	0.2	Formalin ..	2.0
Sod. chloride ..	0.9	Distilled water ..	100.0

The solution is lightly tinted with methylene-blue. Sodium metaphosphate (following Pratt) was found to be superior to other substances tried in discouraging agglutination, and the formalin preserves the plates and corpuscles in such a way that reliable counts may still be made many hours after the preparation was set up.

Slides and coverslips are cleaned in the usual way. The skin is punctured through the droplet of diluent by a sharp prick of one of the needles; a slide is quickly lifted and its centre lowered on to the droplet and then raised so as to bring away blood and diluent; the second needle having been used to stir them into a homogeneous mixture, the slide is lowered in the inverted position on to a coverslip, which is then immediately sealed on to the slide with melted paraffin. These stages all demand rapidity of action, and sharpness of the needle is of the utmost importance. If there be not an immediate and sufficient flow of blood, or if the flow be excessive, that puncture must be abandoned and another attempt made. If there be too much blood in the mixture, the mistake cannot be rectified by wiping off some of it, nor by pressure on the coverslip; such procedures were found to disturb the relative proportions of plates and red corpuscles.

Discrepancies Resulting from Errors of Technique.

Table I. shows counts all made about the same time from the same subject and illustrate the discrepancies that result from errors of technique:—

TABLE I.

	Notes.	R.B.C. per plate.	R.B.C.	Plates.
1	Rapid flow	18.6	5,100,000	274,000
2	Rapid flow	17.5		297,000
3	Slow flow	29.2		175,000
4	Intentionally slow flow ..	34.9		146,000
5	Rapid flow; excess of blood; "wipe off"	15.3		333,000

The plates are easily detected by reason of their faint blue coloration, their Brownian movement, and their characteristic structure. The counts were made

with a 1/12-inch oil immersion objective, a No. 4 eye-piece containing a square diaphragm, and a draw-tube at a known length; with the optical system used there is an optimum concentration of blood to be aimed at. In this case it was found to be such that each field contained between 20 and 30 red corpuscles; fields not meeting this condition were rejected, since it was shown by prolonged differential counts in the same preparation that if the number of red corpuscles in the field were fewer than 20 the proportion of plates was unduly high, and the contrary was the case if the red corpuscles exceeded 30 to the field.

Table II. shows counts from two preparations which were made at the same time from the same subject:—

TABLE II.

	Average number of red corpuscles per plate in fields containing—			Average 14.3 14.8
	10-19	20-29	30-39	
1	9.9	14.7	18.2	
2	9.7	15.2	19.5	

It will be noticed that the grand average approximates to the figure given by the 20-29 class of field; this has been an invariable experience, and it was concluded that such fields, as giving the most representative counts, were of the optimum concentration, and ought to be selected to the exclusion of others. There are probably physical reasons for these anomalies of distribution, and the admission must follow that the figures obtained, though legitimately comparable, may not be strictly absolute.

Method of Counting.

In practice it was found desirable to make, for each observation, two preparations, and to count in each at least 40 plates and the accompanying number of red corpuscles; the number of red corpuscles per plate can thus be determined, and if the preparations satisfy the requirements above described, the numbers obtained from the two preparations should not differ by more than 10 per cent.; the average of these two figures divided into the number of red corpuscles per c.mm. gives the number of plates per c.mm. It is sometimes possible to reduce an excessive experimental error by counting a further series of fields in a different area. Practice and uniformity of technique are essential.

Table III. gives some idea of the kind of results obtained; all are from the same subject, and the increase of plates on one occasion (Nov. 28th, 1922) is an example of a physiological variation to be reported upon later.

TABLE III.

Date in November, 1922.	R.B.C. per plate.	R.B.C.	Plates.	Approx. per cent. difference.
25th ..	(1) 23.8 (2) 25.2	5,680,000	237,000 222,000	7
26th ..	(1) 23.8 (2) 22.9	5,690,000	237,000 246,000	4
27th ..	(1) 23.0 (2) 22.8		245,000 247,000	1
28th ..	(1) 17.0 (2) 15.9	5,600,000	331,000 354,000	7
29th ..	* (1) 22.3	5,540,000	252,000	—
—	Average ..	5,630,000	—	—

* Single observation.

There being no significant variation in the number of red corpuscles, the average of four counts was used in calculating the absolute number of plates.

I wish to express my thanks to Prof. Hector Christiani, of Geneva, in whose laboratory the work was started; to Dr. P. Gautier, also of Geneva; to Dr. W. Cramer, of the Imperial Cancer Research Fund, who suggested the subject; to Dr. Bernard Hudson, of the English Sanatorium, Montana, who freely provided material and opportunities; and to the Medical Research Council, who gave a grant in aid of this research. The investigation has been carried on during the tenure of the McCosh Bursaries (University of Edinburgh, 1914 award).

DUAL PERSONALITY.

By ROBERT M. RIGGALL, M.R.C.S. ENG.

A TRUE splitting of personality should be distinguished from a fugue, although psychologically both can be classified as dissociations. A dissociated state is simply the manifestation of the repression of some unpleasant experience which, instead of remaining quiescent, has acquired independent activity. A case of dissociated personality is by no means an isolated curiosity. It differs only in the mode of manifestation from quite common cases of wandering, loss of memory, sexual manias, and alcoholism or drug attacks. All are manifestations of some repression of unpleasant experience; accident and temperament usually determine the mode of manifestation; the essential fact is that by losing himself in the "unconsciousness" of drugging and kindred manias or by dramatising himself into some other personality, as my patient did, the subject for a time gets rid of the burden of his neurosis. A fugue takes on more the character of the type induced by narcotics. When the normal state of consciousness is resumed the patient has amnesia for the incidents taking place during the fugue; these incidents can only be revived by psycho-analysis or hypnosis.

As the late Dr. W. H. R. Rivers pointed out, the subject of a fugue is not unconscious but quite capable of experiencing all the modifications of consciousness open to the mind in its normal state. This particular state of consciousness is simply cut off from the normal waking life of the subject.¹

The case I am about to describe shows this dissociation in a more marked degree than in the common condition of fugue. Morton Prince, in his description of Miss Beauchamp, has described a case of multiple personality in which one of the personalities was able to control the others. He prefers to use the word "co-conscious" rather than unconscious for this type of case. In the ordinary fugue there is no independent consciousness at all; the unconscious has not personified. My case is simpler than Morton Prince's in that I was unable to discover more than one separate personality; but it differs from the ordinary fugue in that the patient dramatised his unconscious state.

The Case Described.

History.—The patient has been under my observation at intervals for three years. He is the youngest of a family of ten; two of his sisters are engaged in religious work, one with a missionary society in India, the other with the Church Army in England; a brother—the alter ego of his dissociation—was training as a missionary but enlisted in the army on the outbreak of the war and was killed. The father, who was a policeman, was a very strict disciplinarian; the mother idolised her youngest child and always protected him from his father's sternness. Between him and the brother B., who was only two years his senior, was a very strong bond of affection. There is no history of infantile convulsions or of petit mal. As a boy the patient was abnormally sensitive to suffering and cruelty; experiences of his fourth year revived under hypnosis relate to his father's sternness, his mother's soothing; later recollections tell of his fondness for reading books of adventure and travel, particularly books connected with running away to sea. In fact, before the war he became a ship's steward, but subsequent experience has shown that his attacks of wandering have nearly always followed a visit to the seaside. Unfortunately not very much can be gathered about his first "nervous breakdown," which occurred before the war, when he was 18. But four years' experience have convinced me that there is very little "war shock" proper. The stress of war conditions has simply revived latent conflict; in most cases by the defensive intensifying of the instinct for self-preservation which had been repressed, along with a multitude of associations and conflicts, in the course of growth and education; whereas the mass suggestion of war, in some cases, released latent primitive savagery, in other cases it released conflict just as atavistic in the history of the individual as is savagery in the history of the race. The patient is married and has three children. His army record shows that he enlisted in May, 1915, and served in

Gibraltar and Egypt; in April, 1916, he was transferred to France, where in June of the same year he was blown up and sent to hospital in England. He remained in hospital until the following May; in October, 1919, he was brought before a medical board after having been found wandering and taken to a workhouse for refuge. He was first seen by me on Sept. 16th, 1920, and continued under my treatment until Jan. 19th, 1921. I then thought that I had fused the dissociated personality and was able to get him taken back at his previous employment. He came back to me on Oct. 16th, 1921, after an attack of wandering at Fleetwood. I found him intelligent and suffering from no apparent signs of anxiety; he was quite unable to recall details of his wanderings during his periods of amnesia, but under hypnosis he described them very clearly.

Attacks of Wandering.

First Attack of Wandering.—I have received from the patient a written account of his first attack of wandering, which happened when he was with his battalion at Shoreham in October, 1916. It was during this month that he heard of his brother B.'s death in France. At the time he was very much worried by his family's opposition to his marriage; his mother, to whom he was devoted, had told him that he would tire of his fiancée in a month and he was in severe conflict between his respect for his mother's opinion, his own desires, and his duty to his fiancée. Also his hypersensitive nature seems to have suffered severely from the coarse and suggestive chaff of his army companions on the subject of marriage. It was then that he felt compelled to be alone and think things out for himself, for he felt that his senses were leaving him. Leaving camp he walked to Brighton, and knew nothing more until he wakened in hospital, where he was kept for five weeks. He was next sent to Springfield War Hospital, where his progress was good except for attacks of hysteria. After his discharge he went to the dépôt at Ealing, after which he worked as a clerk in Woolwich Arsenal. In 1919 he came under the influence of Mr. P., a Baptist minister, who had at first a peculiar attraction for him and persuaded him to help in a boys' brigade. Mr. P. was the object of the patient's transference of emotions connected with the "stern father" of his youth. With him the patient had much argument about death, the clergyman taking the extremely orthodox views of his sect; for instance, he tried to make the patient believe that a man who died with an oath on his lips would have to answer for it in the next world; that a man responsible for another's death would be punished after his own death, and so on: this religious conflict was very severe and brought back dreams of the days of active service which the lapse of time and the patient's morbid imaginings had intensified in horror.

Second Attack.—During this period he felt that if he could find his brother B. his troubles would be over; the typical neurotic's desire, the quest for the unattainable which, if attained, would bring rest and peace; if not attained is excuse for relapsing into the neurotic state. Whether he consciously wished to find his brother because B. was dead, and therefore his finding him would presuppose his own death and consequent cessation from conflict, or whether he felt that B., being a theological student, might have some inside information on his religious doubts, direct from the throne of Heaven, as it were, is not very clear. Changes at the office had been greatly worrying him; Mr. P. was urging him to try "Faith Healing" or "Divine Healing" and advised him to give up his treatment; he also advised him to give up living with his wife for a time. In the midst of this conflict he went with his wife and children to Bournemouth for the summer holiday, where, he records, they were very happy. On his return he was delighted to find a letter pointing the way to a better position, which would have meant his leaving irritating office surroundings; it is interesting at this point to note that his unhappiness at the office arose from what he considered the petty tyranny of a woman superior. On learning that this letter had come to him by mistake his disappointment was so severe that he experienced all his old mental torments and for two nights had no sleep. An interesting fact emerges here. I interviewed the patient's wife, who told me that after a happy seaside holiday he was "always upset." She associated the upset with the sea. Yet before his first splitting he had been happily at work as a ship's steward. Examination of his history since the splitting reveals the fact that he was always "upset" after a particularly happy time with his wife; the upper working-class summer holiday, a lazy time at the seaside with something of the return to honeymoon days when the man is released from his office, the woman from her kitchen, and they can devote themselves to each other. Here, again, is the typical neurotic picture; when things go too smoothly for a neurotic he gets dissatisfied and "looks for trouble." In this case the conflict was between his repressed, unconscious homosexuality and the pleasure he took in heterosexuality; he was distressed because he had

¹ Instinct and the Unconscious, Cambridge University Press.

found pleasure in his wife's company and thus, as it were, was untrue to a vague, intangible ideal repressed into the unconscious and from that vantage-point dominating his whole being; such a neurotic is in the condition of a man who receives messages by wireless delivered with such an air of authority that they must be obeyed, although he has no notion whence they come. Peace can only come when this "authority" is dethroned.

On this particular occasion, instead of going to work, the patient took train to South Harrow and wandered aimlessly about until he found himself on a hill down which, many years before, he had cycled with his dead brother. He had been in severe conflict all morning, turning to go home at one minute, impelled onwards the next; at this point the conflict gave place to a sense of expectancy. He lived again the ride down the hill when his brakes failed to act, and B., standing at the foot of the hill, had caught him as he crashed into the brickwork of a bridge just in time to save him from an oncoming omnibus. Here B. was waiting for him as before, and they were joined by the elder brother F., who had been killed in Canada many years before. They walked on together, being uncertain which path to take; personally, he wanted to go to Tring, which he felt promised peace and rest. But by degrees the personality of B. so took possession of him that he was impelled to set out for Burgh in Lincolnshire, where B. had been training at a missionary college; he felt that he must carry on B.'s work there. He walked about until he dropped, when he was taken to Hemel Hempstead Infirmary. On reviving these experiences under hypnosis his anxiety was severe; he begged his brothers not to pull him about. I had to waken him.

Other Attacks.—Another time he was found wandering on the Island of Skye, where he had walked into the sea. After a detailed description of the journey to Inverness, involving many changes, he stated that the Island of Skye on a railway map on Crewe station appealed to him as a far-away place where he might find peace and rest; heaven, the heaven of his childhood's teaching, "above the bright blue sky," might possibly be there! After wandering about the hills at Strom Ferry, he decided that "that was not the place he was looking for," but, seeing some men going in a boat to the island, he begged them to take him. It seemed to be the "place he was looking for." On landing he wandered about miserable and lonely, wishing himself at home. Then he made a consciously determined, but unconsciously self-defensive, effort at suicide in order to get back to the pre-natal state of oblivion. That is, he tied his hands with a strap—knowing himself to be a strong swimmer—but unfastened the strap in order to write a letter of explanation to his wife. After this, failing to find the strap again, he weighted his pockets with stones and walked into the sea. There the shock of the cold water, when he had walked out of his depth, brought him to himself; relieving himself of the stones, he swam to land, where he found care and attention from the villagers and the Poor-law officer.

At another time, under hypnosis (Oct. 22nd, 1921), the patient gave minute details of office work and various accounts and invoices that worried him. In this instance he took an omnibus to King's Cross, in severe conflict because he wished to kill his wife. A few moments later he was so anxious about his wife's welfare that he longed once more to get away from everything; he saw B.'s face coming nearer and nearer, until he himself "shrunk to a pin's head," and his brother's face, to use his own words, "went right in." When the patient revived these memories under hypnosis I noticed a peculiar change in his voice and manner. He described how he went to Bletchley, walked to Rugby till almost exhausted, thence took the train to Preston, where he had some food, next he went to Carlisle and back again to Fleetwood. Here he walked about in the rain, cold and tired, until he fell down unable to go farther. The next thing he remembered was waking up in hospital at Fleetwood, where he remained for three weeks. This incident brought him some amount of notoriety, as it was reported in a daily newspaper. Under hypnosis he revived much conflict about killing his wife and children and trying to get to Blackpool, the sea, as usual, suggesting peace and escape. This attack of wandering happened after a holiday spent with his wife and family at Yarmouth. Two interesting sidelights were thrown on this Fleetwood affair under hypnosis: firstly, his last memory of his brother B. was his seeing him off to the front at King's Cross Station and watching his face receding in the distance as the train went out, just as his own face seemed to recede when B.'s came to "go right into him." Secondly, he was brought back to everyday reality at Fleetwood by hearing a child cry and being reminded of his own children.

Dream Symbolism.

I ascertained that this patient's dreams were full of homosexual symbolism. For instance, he dreamed of being chased by a bull with short, thick horns; the bull was on

the other side of a stile and B. was protecting him from it. It had big, round eyes—B.'s eyes. Another time he dreamed of entering a house and hearing that his wife was dead. When he went up to her room it was B. who lay on the bed. B. was quite black all over. He told the patient that he had taken his wife away because he was so unkind to her, and he, B., had come to take her place. In the first of these dreams the ambivalent state of the patient's mind is interestingly shown; the bull (homosexual symbol) is attacking him, typifying his repressed homosexual feelings for his brother, shown by the reaction to the repressed wish; at the same time his brother "protects him from himself." In the second dream the symbolism is even more obvious. It is interesting to note how the idea of vicarious suffering on B.'s part, inculcated by years of Christian teaching, had crept into the patient's unconscious self.

Another dream told of his being chased out of his home by men with big sticks and going to his mother for protection, but finding her door locked against him. He then went to a shed on a hill and lay down to sleep. This dream exemplifies a projection of his repressed homosexuality; by defence reaction the emotion "I love the man" becomes "I hate the man"—that is, he hates what he dare not love and ideas of persecution follow. On the other hand, it may typify a wish-fulfilment—i.e., a repressed desire for sexual attack from a man. (The symbolism of the "big stick" is fairly obvious and very common.) In both cases he runs to his mother for protection—either from persecution or from his own conflicting desires—and finding himself locked out finally obtains peace in a shed on the hay.

Conversations under Hypnosis.

The following conversations are reported verbatim. The patient, without any suggestion from me, usually assumed the personality of B. under hypnosis, but whereas this was at one time accompanied by severe anxiety it now costs him no stress whatever.

Oct. 7th, 1921. Q.: Who are you? A.: Don't know.—Q.: Are you happy? A.: No, I am depressed.—Q.: Where do you want to go? A.: To the north; to the sea, so that I can get in a boat and be by myself; so that I cannot get horrible feelings about people. Something is pressing my head now and I cannot bear the noise of a lot of people.—Q.: Do you remember your mother? A.: Yes. She is alive I love her very much.—Q.: Why do you want to go to the sea? A.: It seems so restful. I cannot rest. (Anxiety and cataleptic state.)—Q.: Do you know about your other self? A.: Yes. It is my brother X. (patient's own name).—Q.: What is your name? A.: B. (the name of the dead man). (Great anxiety. I wakened him at this point and he said he had seen B.)

June 7th, 1922. He saw his dead brothers F. and B. walking together. They wanted to go with him to some place. Great anxiety followed. Patient begged them to stop dragging him about. Then he said he had been killed before he had finished his work, and he must go back to Lincoln to do it. Q.: Who killed you? A.: I was standing up; I did not see it come; I must go back to Lincoln.—Q.: Who are you? A.: B. (Great anxiety followed and he struggled.)

June 8th, 1922. Q.: Who are you? A.: X.—Q.: Who were you yesterday? A.: B. came to me and made me lose myself, as he always does. He wants me to go on with his work.

In my attempts to get at the root of his parental fixations and of his identification with his brother, I carried him back very far into his past by suggesting to him, under hypnosis, that he should remember various red-letter occasions of a child's life. The results were interesting in the extreme: he talked in childish terms and tones; he recalled birthday presents, sweetmeats and toys, during his third and fourth year, and games with his family. Reviving his first birthday, the patient saw his father bending over him; he was dressed as a soldier but not a soldier of to-day. Inquiry elicited the fact that at this time his father was a Volunteer.

At one time, under hypnosis, the patient said that B.'s face was coming towards him; on being asked to touch it he did so and his hand came closer and closer until it touched his own face. He always describes B.'s face as bluish-white. When he was blown up in France he saw a man with a bluish-white face lying on a stretcher. While in hospital at Hemel Hempstead he saw a man in bed with a repulsive face; he frequently confuses these three faces when asked if it is B.'s face that he can see.

Commentary.

Several points of interest emerge from this case. First, the patient is now in good health and has had no trouble since August, 1922, but for reasons I shall state I cannot feel that the improvement is permanent. He called on me during the first week in April of this year and seemed very cheerful and well in hand.

What are called "fixed" symbols enter into this case a great deal. The patient's whole life is a conflict between everyday reality and his forced accommodation to its demands reacting in a desire to return to the infantile or pre-natal state of rest with the mother. So ships, trains, the sea—things great and powerful that will hold him and carry him about without his volition—attract him immensely. It is noticeable that he always tries to run away by one of these means—train, ship, or sea—after an attempt to accommodate himself to the herd by being happy with his wife on a holiday—that is to say, he has been superficially and consciously happy; unconsciously he has been unhappier, more dissatisfied than ever, and must get away from the wife who has been the innocent cause of the strife. Of course, sexual happiness and satisfaction with a woman would always react in severe stress, conscious or otherwise, in a man with a strong mother-fixation; his normal erotism demands sexual satisfaction from the woman he loves; his fixed, infantile impression of woman as the mother makes him deeply dissatisfied with and anxious to escape even from thought of the woman who has departed so naturally from this ideal of his at his own need and demand. In some such cases, where the conflict is not very severe and the sufferer from it in fairly normal mental health, the only result is the abrupt ending of a love affair to the pain and bewilderment of both man and woman. In other cases, where the conflict is so serious as in the case of X., he takes refuge from his unbearable unhappiness in a psychoneurosis which brings about amnesia.

Cases of true dissociated personality are extremely rare, and it is considered almost impossible to bring about complete cure; fusion of the two personalities can be brought about up to a certain point; this point is determined in every case of dissociation by the causation and the gravity of the effects of splitting on each separate occasion—that is to say, a case of dissociation is like a chain with hooks at every link, each link or disunion adding to the weight of conflict and dissociation the patient has to carry. Morton Prince is opposed to what he calls "attempts of a Dionysian psychology" to refer the dissociation to a single unconscious wish either sexual or pleasure-seeking. The case of X. seems to bear out Morton Prince's opinion in this particular.

Genesis of Dissociation.

The dissociation in this case comes about through the patient's parental fixations, and to a certain point typical of these fixations both in circumstance and result; we get the stern father, in this case doubly endowed with attributes of fear by his own characteristics and by his policeman's position and uniform; we get the idolising mother lavishing her middle-aged love on the babe of her brood; we get an exceptionally religious household with strict ideals of duty to God and the nation, as is shown by the careers chosen by the patient's brothers and sisters (army, police, or religious careers for the most part). We get the patient's mother-fixation, first of all in the fact that his only sexual outlet is a homosexual attachment to his brother so strongly repressed as to be symbolised almost out of recognition, as such an attachment could be in this household of law, order, religion, and family affection. The patient's horror at his army companions' coarse jokes about marriage shows that he had not had the young man's usual experiences. There is strong, unconscious attachment to his brother as instinctive and aesthetic on the sexual side, and unconscious on the normal, affectionate family side, yet there is such strong unconscious sexual conflict that his first splitting of personality coincides with his first attempt to obey the herd instinct in thinking of marriage, hesitating about it in his desire to please his mother, urged to it by his love for the girl, repelled from it by coarse suggestions about marriage and by his own quite unrealised fixation on himself—i.e., the Man as opposed to the Woman. And at this point in the patient's history the beloved brother dies! That is to say, he, the brother, ceases from conflict.

B., the brother, is not worried by desire for marriage and revulsion from marriage because B. is dead! X., being still in the land of the living, has all these conflicts to bear. What more natural, then, than that he should seek to end his conflicts by suicide or, failing that and being endowed with a fluid personality, take on the character of the dead brother and thus attempt to find rest for himself? The case of X. appears to be a constant history of defence reaction; from birth up to the moment of conflict in the camp at Shoreham, when marriage was approaching, this patient's history is typical of hundreds of others, most of whom are alcoholics, drug-takers, religious maniacs, or psychoneurotics of some type or other—men afflicted with a mother-fixation and its attendant tendency to homosexuality, with its legacy of rushes into sex adventure from which they emerge broken; men unable to accommodate themselves to normal life. If his brother had not died at that particular moment what would X.'s subsequent history have been? It is useless to speculate. The case is disappointing from the point of view of result; he has transferred his parental fixations to me and depends on me far too much, although while I was away for four weeks in January of this year he did not have a breakdown. I am hoping that I may be able to get him fixed up in work in Australia, where I feel that complete change of environment and the interest of a new life will maintain the improvement he now shows. But I wish to make it quite clear that I know that I have treated this case wrongly; yet I had no alternative. It is necessary, in the case of a working man with dependents, in a country already overburdened with invalids, to patch a man up so that he may earn his bread and carry on his daily life as well as possible. Hypnosis was my only means of getting quickly at the roots of his trouble; if he had been a man of the leisured class who could have afforded the time I should never have thought of hypnosis. Long and detailed analysis is the only radical cure, but once having begun by hypnosis one has to continue, with the result that the patient depends on his physician.

Clinical and Laboratory Notes.

A CASE OF

COEXISTING UTERINE AND ECTOPIC GESTATIONS.

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IN 1913 Neugenbauer collected from the literature of the subject 243 cases of an ectopic and a uterine gestation occurring at the same time. Since then only about half a dozen cases have been recorded; one of the most recent cases is described by Stropini,¹ who believes the occurrence to be not infrequent.

The following is a record of a case with this very interesting association.

History.—A married woman, aged 26, was admitted to the Napier Hospital on Oct. 22nd, 1922, with the diagnosis of ectopic gestation. Her eldest children are male twins 5 years old, and her other child is a boy aged 3½ years. An aunt of her mother's had two sets of twins. On July 7th, 1921, she had been curetted, following a miscarriage. A month after the operation there was a menstrual period lasting about five days instead of her usual three days, and associated with considerable malaise and some pain which necessitated her going to bed. Following the next period a month later there was a blood-stained vaginal discharge which was intermittent and persisted up to the time of admission. During this time there was very severe abdominal pain associated with sacral backache. On examination there was tenderness most marked in the left lower quadrant of the abdomen, with some rigidity. On vaginal examination a mass was felt in the pouch of Douglas, extending into the

¹ Annali di Ostetricia e Ginecologia, November, 1921.

left lateral fornix. The temperature, pulse, and respiration rates were normal.

Operation.—On Oct. 25th, 1922, the abdomen was opened and the left tube was found to be distended in its ampullary portion with blood-clot, which had evidently ruptured through the ostium, forming an incomplete tubal abortion. The blood-clot had become partly organised and the raw surface left after its removal was covered by bringing part of the mesosigmoid over it. On removing the tube a small interstitial cyst was found on the uterine side of the ectopic gestation. The uterus was noted to be about the size of a three months pregnancy. The left ovary was normal. The right ovary contained a cyst nearly the size of a golf ball, which was removed by a wedge-shaped section and found to be a lutein cyst containing clear fluid. The surface of the section showed another normal-looking corpus luteum. The appendix, which contained some concretions, was removed and the abdomen closed.

On the 27th the patient began to lose blood and blood-clots per vaginam, and on the 31st aborted a three months embryo with membranes complete. Convalescence was uneventful, and she was discharged on Nov. 18th.

Remarks.

The rules laid down by Bichet and Costa in dealing with this condition are agreed to by Stropini in the article already mentioned,¹ and are as follows: (1) When both embryos are living during the earlier months of pregnancy the ectopic gestation should be removed; (2) when the extra-uterine foetus is alive in the later months of pregnancy expectant treatment should be adopted, followed by laparotomy at the commencement of labour; (3) when the ectopic foetus is dead treatment should be as in simple extra-uterine gestation.

It seems possible in the case recorded that if the cystic condition of the right ovary had not been interfered with abortion would not necessarily have followed the operation.

A NOTE ON

SYPHILIS IN SONTIUM IN SCHOOL-CHILDREN.

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THE following three cases of accidental acquired syphilis which were recently seen at the Cardiff School Clinic are recorded as pointing to the prevalence of this condition in children and the possibility of the disease being overlooked:—

A boy, aged 13, was brought by his sister who said he had ringworm. On further questioning she stated he had sores between his legs and that there had been a sore there some three months previously for which ointment had been used. On examination he was found to have very marked syphilitic alopecia, anal condylomata, and general adenitis. Wassermann + + +.

A boy, aged 13, was reported as suffering from impetigo and ringworm and had been treated as such for some weeks. There was a somewhat indefinite history of a sore on the tongue four months previously. At the time of examination alopecia was very marked and there was a serpiginous scaly rash on scalp, trunk, and limbs, impetiginised in places, especially on the scalp. General adenitis. Wassermann + + +.

A boy aged 12. Mother stated he had chicken-pox (? pustular syphilide) a week or ten days ago; now complained of ringworm and sores on his body. On examination he showed a copper-coloured squamous syphilide resembling psoriasis, impetiginised areas on scalp, alopecia, general adenitis, ulcerated mouth and left tonsil. Wassermann + + +. The mother remembered the boy having a sore in his mouth and swollen glands in the neck some months ago.

All the cases cleared up rapidly after a course of N.A.B. injections and hyd. c. cret. at the V.D. clinic. The source of infection was not definitely traced in any of these cases, although the home condition of one of the boys was very unsatisfactory. The superficial resemblance which the cases showed to ringworm, impetigo, and psoriasis diverted attention from the possibility of secondary syphilis, and it was only after a more complete examination that the true nature of the disease was established.

Cardiff.

Medical Societies.

SOCIETY OF MEDICAL OFFICERS OF HEALTH: INFECTIOUS DISEASES GROUP.

A DISCUSSION ON BED ISOLATION.

At the annual meeting of this Group, held at 1, Upper Montague-street, Russell-square, London, W.C., on May 25th, Dr. E. W. GOODALL being in the chair, Dr. FREDERIC THOMSON opened a discussion on Bed Isolation and the Conveyance of Infection within a Ward by the reading of a paper which appears in full on another page.

Experience at the North-Western Fever Hospital.

Dr. GOODALL, from the chair, emphasised the necessity, on the part of observers recording experiences of different methods of isolation, of giving full particulars in respect of the ages of the patients, length of time they were in the ward, previous infectious diseases from which they had suffered, the stage of the infectious disease for which they were admitted, the number of cases treated in the ward, the number of beds, and the number of staff employed. It was not sufficient merely to state that so many patients had been treated in the ward and that so many had caught or had not caught an infectious disease. While Dr. Thomson and Dr. MacIntyre had given most of the details referred to, some observers had omitted to do so; but every one of these details was of importance in coming to any conclusion as to results. There was a ward of 20 beds for bed isolation at the North-Western Hospital; 900 patients had been treated in this ward from Jan. 1st, 1920, to the beginning of May, 1923. There had been 31 cases of cross infection during that period in the ward, or 3·4 per cent. Of these 9 had been cases of measles, 6 of chicken-pox, 7 of scarlet fever, 6 of diphtheria, 2 of whooping-cough, and 1 of rubella. No case of chicken-pox or measles had been deliberately placed in the ward. The cases of these diseases had arisen subsequently to the development of one case of each disease in a patient who was admitted unwittingly in the incubation stage and upon the only occasions on which such cases had been introduced into the ward. A large number of mild cases of scarlet fever, diphtheria, whooping-cough, and rubella had been under treatment in the ward. As regards the number of patients protected by previous attacks of infectious diseases, Dr. Goodall stated that of 1000 consecutive cases which had been treated in the isolation chambers at the Eastern Hospital some years ago, 63 per cent. had previously had measles, 25 per cent. chicken-pox, 24 per cent. scarlet fever, 20 per cent. whooping-cough, and 16 per cent. diphtheria; 94 per cent. of the 1000 cases were under 10 years of age. The information as to previous attacks had been obtained from the parents. From the evidence obtained from the numbers of these cases which had caught infection in the chambers, he had come to the conclusion that chicken-pox was the most infectious of the diseases treated, measles the next, and then scarlet fever, whooping-cough, and diphtheria in the order given. He agreed with Dr. Thomson that measles and chicken-pox were most infectious during the early stages. He knew of two instances in which patients suffering from chicken-pox in the scabbing stage had been admitted to children's wards with no spread of the infection. He understood that Dr. Thomson's opinion was that chicken-pox was infectious only so long as vesicles were present. If that were so, chicken-pox might remain infectious for longer than four days, as occasionally vesicles continued to come out for several days. Excluding the cases of measles and chicken-pox, the incidence of cross infection in the ward at the North-Western Hospital was 1·7 per cent. He had not insisted upon the windows being open in this ward. Dr. Thomson made a brief allusion to wards containing separate

chambers with a central corridor. He, Dr. Goodall, had also considerable experience of this method of isolating cases. He had succeeded on several occasions in nursing acute cases of chicken-pox in these wards without the spread of infection, but on other occasions infection had spread. He was inclined in some instances to attribute this spread to some omission on the part of the staff. After all, the success of the methods depended very largely upon the staff. He had not that afternoon heard any facts which led him to alter the conclusion he had come to some time ago, that it was unsafe to treat *all* cases of measles and chicken-pox, and *most* severe cases of scarlet fever, diphtheria, and whooping-cough in bed isolation wards, during the acute stage of the disease.

Experience at Plaistow.

Dr. D. MACINTYRE remarked that a great deal had yet to be learnt regarding the control of infection. All who had done bed isolation work appeared to have experienced some cross infection, the results obtained by Dr. Rundle being the nearest approach to complete success. At the same time he considered that work along bed isolation lines was of the greatest value, not only from the point of view of treating different infections in one ward, but as a means of preventing cross infection in the main wards of an isolation hospital. He was of opinion that droplet and aerial infection were not the only or even the greatest source of danger in a well-ventilated ward. In an operating theatre the surgeon took every precaution against carrying infection by his hands or instruments, &c., but paid little or no attention to the air of the theatre, and it could be imagined there was some risk of the wound becoming infected from the air, but evidently it did not. It seemed to him that the success of a bed isolation ward depended mainly on how far the surgeon's standard of cleanliness was carried out with regard to all feeding and nursing utensils, and of almost equal importance was the free ventilation of the ward. Another important point was to limit the number of articles in use to the bare minimum and reduce the system of nursing to as simple a form as possible. With regard to nursing staff, he felt satisfied that the average class of nurse could be relied on to carry out her work efficiently. At Plaistow the nurses were taught the meaning of surgical cleanliness from the outset and the vital importance of all details of the routine was constantly impressed upon them by the sister, and his experience was that they carried out their duties conscientiously. With regard to the measles cross infection at Plaistow, referred to by Dr. Thomson, though he was not certain on the point, it was quite possible these cases were caused by some of the patients admitted before the onset of the eruption. At the present time chicken-pox patients were not receiving any special treatment to the skin. Two had been admitted recently on the first day of disease and none had cross-infected. Referring to cubicle and cell wards, he emphasised the danger of infection spreading through the opening and shutting of doors by the nursing staff. In bed isolation wards his danger was eliminated, and further, there was the opportunity for a continual current of fresh air.

Experience at Fazakerley.

Dr. C. RUNDLE, who had received an advance copy of Dr. Thomson's paper, wrote as follows: It is very clear that Dr. Thomson's results are quite different from ours, but the explanation is less obvious. Since the army figures at Fazakerley must run into a thousand or more above those already published, with a cross-infection rate which is really negligible; in fact, from memory I can only recall two cases. My bed isolation wards are regarded as the most safe of all. As an example of how our own staff see the matter, one of our assistant matrons persuaded me to admit her nephew for a particular asthma treatment. The child, aged 2 years, had had no infectious disease, but by her special request was admitted to a bed isolation ward rather than an isolation or side ward. When I have a little more time I hope to produce a return including all the facts of which Dr. Thomson speaks in

his paper. The following points may account for a good deal: 1. The dilution of our cases with adults. 2. The fact—suggested in Dr. Thomson's paper—that mine are chiefly from outside, and consequently somewhat later in their stage of illness than his. 3. My object has been to extend the usefulness of the hospital in as many directions as possible, compatible with the safety of my patients, and every device possible has been employed to avoid unnecessary risks. Dr. Thomson, on the other hand, has deliberately, in the interests of scientific investigation, placed every conceivable strain on his system by a selection of cases at the most infectious stage and susceptible age, with no diluents in the shape of adults or negative cases. Is it really surprising that our results are incompatible? Does not the fact of the sporadic character of Dr. Thomson's outbreaks suggest a fault in technique? It seems to me that the human factor is more likely to be the cause of variability than aerial transmission if it exists. The only proof of this would be an exchange of nursing staff. Finally, let me say that this human factor is always present in my mind. Bed isolation is utilised at Fazakerley for the reception of cases for which no ward is open at the time. For instance, at the moment we have so many cases of varicella and measles that special wards are in use, and there is not a single case in the bed isolation wards. As, however, the outbreaks subside, these wards will close and individual cases will again be sent to the bed isolation wards.

Experience at Edinburgh.

Dr. C. B. KER also wrote: I am glad to be allowed to contribute to a discussion which I cannot, unfortunately, attend. I cannot speak with any authority on the subject, as here in Edinburgh I have never run a bed isolation ward. I find it very difficult to define when droplet infection ends and aerial infection begins, but I would be inclined to call infection occurring in a closed space like a ward droplet rather than aerial. I must confess to having always inclined to the belief that contact infection is the point of most importance, and have been very sceptical of the carriage of droplets for any distance. Such carriage, however, is conceivable and probably occurs under suitable conditions in wards which are not too large, but again the question as to whether a suitable infecting dose is often likely to be carried as far as the length of a ward is another matter altogether. I am quite prepared to believe it occasionally occurs if air currents are particularly suitable. It will be remembered that Armstrong was unable to establish that measles carried more than nine feet in the school chapel at Wellington. Evidence of infection within that distance was definite enough, and yet measles is aided by forcible sneezing, which surely must propel droplets as far as any other method of dissemination. No doubt the droplets do go a greater distance, but are they so scattered as not to carry an infective dose? On the other hand, assuming that there are no errors in technique, and I quite believe that, if there are any in Dr. Rundle's or Dr. Thomson's wards, they are extremely rare—it is extremely difficult to get over Dr. Thomson's experience of chicken-pox without admitting that, indoors at least, the infection can be air-borne. In this connexion I remember being very much impressed by the experience of Dr. Peters at Bristol, who reported that widely opened windows, winter and summer, appeared to prevent the spread of chicken-pox, and that children incubating the disease in his wards did not transmit the disease in. I think, over 20 consecutive instances. I remember in one summer I had six consecutive introductions of chicken-pox to a whooping-cough ward in this manner without a secondary case, an experience I have never had before or since. The children in this case had 15 ft. of wall space, and the windows between them would always be open, usually widely open. One cannot escape from the suggestion that the free cross-ventilation may so break up aerial currents in the ward as to protect the patients, and I have always regarded Dr. Peters's results as the strongest

argument I have seen in favour of chicken-pox being carried in this manner. There is one point which I have never seen emphasised, and which is, I think, not without interest. It is a curious coincidence that the diseases which give trouble in a bed isolation ward are just those diseases which I suppose we all agree practically everybody takes on their first exposure. Would the results as regards scarlet, diphtheria, rubella, and mumps be so good under bed isolation conditions if they were also what one might almost call inevitable diseases? Chapin has suggested that as regards measles the virus may resist hand-washing and so forth more than that of other diseases, but one would have said that a short-lived virus, such as that of measles apparently is, should be easy, not difficult, to disinfect. Dr. Thomson's remarks on whooping-cough are also interesting. I have referred to his 1914 paper and find many of his cases are classed as first-week. If that means the first week of the whoop and not of the cough, one would expect the worst of the infection to be already over. Personally, I consider whooping-cough as only slightly infectious in the first week of the whoop, and to all intents and purposes non-infectious afterwards. It is extraordinary how often cases admitted without whooping-cough into our whooping-cough wards escape the disease; indeed, they hardly ever do take it, though paroxysms go on all round them with no special precautions. Dr. Thomson's observations on the duration of the infectivity of chicken-pox appear to me of great practical value. It is most interesting to find that after three days the risk seems so slight. I may add that a list of cases treated by Dr. Rundle in his ward, which he very kindly sent to me some time ago, made a great impression on me. Whether his system is universally applicable or whether he has not carried it as far as Dr. Thomson, is another question, but he has certainly taught us a great deal about infection which we had not suspected, and it seems to me that it is to his courage and perseverance that we owe the possibility of such a discussion.

Experience at the South-Western Fever Hospital.

Dr. FOORD CAIGER stated that droplet infection was a subject one did not know enough about, but could assume a great deal. He had always classed it as a form of aerial infection. It was only a question of distance between a person near enough to cough in one's eye and a person occupying a bed at the other end of a ward. Dr. Caiger referred to Dr. Thomson's figures, which tended to show the infectivity of chicken-pox was negligible in most cases after the third day of eruption, and said it was the first time he had seen an attempt to indicate the relative infectivity of chicken-pox at different stages in actual figures. He was of opinion that chicken-pox could not be safely treated in cubicles. He had ventured to express that opinion in a paper on cubicle nursing read at the Society of Medical Officers of Health some 10 or 12 years ago, and subsequent experience had but tended to confirm it. He had not had much experience of bed isolation or barrier nursing, as the South-Western Fever Hospital, which he controlled, was provided with cubicles, and so the need for it rarely occurred, but since "barrier nursing" was essentially cubicle nursing without the partitions, he would hesitate to treat chicken-pox under barrier conditions. Referring to Dr. MacIntyre's remarks about the risk attached to the handling of doors in cubicle wards by nursing staff, Dr. Caiger stated that in the cubicle wards at his hospital the doors of the cubicles were swing doors without handles, which were just pushed by the nurse with her knee as she entered or left. Dr. Caiger expressed his belief that measles came next to small-pox and chicken-pox as the disease which it was unsafe to put into cubicles.

Experience at Leeds.

Dr. A. E. A. PEARSON said that after many years' experience of infectious diseases he had come to the conclusion that chicken-pox was a disease that should not be treated in mixed wards. The fact that it did not convey at one time and did at another was

probably due to the time of the outbreak; that when an epidemic was falling, the chances of cross infection were very much less. He was of opinion that chicken-pox was not a contact infection, but conveyed aurally. One would not dream of putting small-pox in invisible barrier wards, and one should not do so with chicken-pox. Measles could be treated by this system better than chicken-pox or whooping cough, but the question arose as to whether any of these diseases should be placed alongside children who had not had them; it was likely to be viewed by outsiders as a stigma on hospitals. The success of any treatment depended largely on ample cubic space, proper ventilation, and well-educated nurses. Dr. Pearson called attention to the striking distance of chicken-pox, and mentioned that he had known it to carry 300 ft. or more in the City Hospital at Leeds; one could only conceive it to have spread by aerial transmission, as the wind will carry small-pox. As regards the human factor, the most elaborate arrangements could be upset by an ignorant or careless nurse.

System Not Justified by Complete Success.

Dr. A. F. CAMERON said that the system called bed isolation seemed to have developed as a result of the acknowledged defects of the segregation ward and the recognition that the ideal system of isolation—that is, the single-bedded room—was much too expensive for common practice. As contrasted with the common segregation ward, to which as far as possible only one disease was admitted, the "bed isolation" ward was in the beginning used for any variety of infection, with the exception perhaps of small-pox. Now we were told that it had been found that measles and chicken-pox were not suitable for this method of hospital isolation. That is to say, that "bed isolation" had with the majority who had tried it failed with the only diseases which had produced administrative trouble in the segregation ward. Was it justifiable to remove a patient from home, where he had not been exposed to a second infection, and knowingly place him in close association with another disease and trust to fallible human nature alone to prevent him becoming infected? Such a system could be justified only by complete success, and, as far as he could judge, in no case had complete success been achieved.

Dr. Thomson's Reply.

Dr. THOMSON, in reply, said that Dr. Goodall's experience strengthened the contention that chicken-pox and measles were much more infectious if introduced into the ward in the incubation stage and were present up to the time of the outcrop of the eruption. He said he had not maintained that a chicken-pox patient was infectious so long as he had vesicles or pustules, nor that he was not capable of causing infection by contact on the eighth day of the disease; but, as the result of his experiments, he had said that probably chicken-pox ceased to be infectious by contact about the end of the first week or the beginning of the second. He thought the free ventilation of a bed isolation ward, which was considered so very essential, suggested a fear of air-borne infection, and that, as suggested by Dr. G. S. Buchanan (now Sir George) in 1912,¹ the windows might be closed altogether for a time in order to see if any difference in the cross infection rate took place. With regard to Dr. Rundle's comments, Dr. Thomson did not wish to dispute the contention that his bed isolation wards were the safest, but what he did complain of was that sufficient information was not given from which to deduce the value of the results. He considered Dr. Rundle's admission that the cases were placed in his bed isolation ward at a somewhat later stage of illness a statement of the utmost importance, and one which greatly explained the difference in the results. Further, diluting the ward with adult patients meant the introduction of a proportion of more or less insusceptible individuals and a consequent diminution of the number of children who were

¹ Proceedings of the Royal Society of Medicine, Epidemiological Section, May, 1912.

susceptible. He said, moreover, that Dr. Rundle erred when he inferred that he (Dr. Thomson) placed a great strain on his staff, for from the first his ward was specially and amply staffed in order that undue strain should be avoided. He thought Dr. Ker's remark about the curious coincidence that the diseases which give trouble in a bed isolation ward are just the diseases which practically all children take might be added to by asking why these particular diseases give such trouble if the infection is by contact only. Dr. MacIntyre thought the fewer the basins and other such articles in a ward the better, but that could scarcely explain the difference between his (Dr. Thomson's) results and those of Dr. Rundle, since he had adopted Dr. Rundle's procedure in such matters. Dr. Thomson, in referring to the danger, mentioned by Dr. MacIntyre, of infection spreading through the nurses opening and shutting doors in cubicle and cell wards, said this could not apply to his wards since the doors were, except in very rare instances, always kept open. In referring to Dr. Pearson's instance of the conveyance of chicken-pox infection for some 300 ft., he said that he thought these instances of the unexpected occurrence of chicken-pox in a ward were generally explained by the incubation of the disease by a patient in the ward, but with a resultant eruption so small as to escape observation. He said he had found this to be so on several occasions after careful examination of all the patients in the ward. He was altogether with Dr. Caiger when he said droplet infection should be classed as aerial infection, and Dr. Thomson suggested that the group should consider the desirability of coming to a definition with a view to avoiding the present confusion of opinion.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.

THE EFFECTS OF PHYSICAL EXERCISE ON MENSTRUATION.

A MEETING of this Association was held at the rooms of the Medical Society of London on May 29th, under the presidency of Mr. R. C. ELMSLIE.

Dr. SANDERSON CLOW introduced a discussion on the effects of physical exercise on the function of menstruation in school girls. She said it was universally agreed that physical exercise in some form was necessary for the healthy development of girls as well as that of boys. Recently, diverse opinions had been published on the matter, but those who were of a medical touch with large numbers of girls naturally referred to be guided by their own experience. For several years she had been medical inspector at a large secondary school for girls, where most of the pupils were boarders. During her first year there she was asked by several heads of houses whether it was necessary or desirable for the girls to lie down and rest during their menstrual period; she believed the general rule was that during this time the only form of exercise permitted was walking, the girl being allowed to lie down if she did not feel well, to lie on her bed and read a novel instead of taking the daily walk. The result was that an increasing number of the girls expressed themselves as too unwell to take part during these days in the ordinary school life. It was the custom to attribute the pain they complained of to their having indulged in too strenuous exercise in their games, and accordingly these were prohibited for three days. Dr. Clow was sure this amounted to a large waste of time and a quite unnecessary interference with the school routine, and, more important, that it laid the foundation of much avoidable suffering in a later period of life. She therefore sought opportunities of a talk with each separate girl of the age of puberty, during which she questioned her as to her habits and feelings at these times, telling her that the advice given before the interview was over was not to be followed without the approval of those responsible for her. At these talks the speaker insisted that

menstruation was not a malady, but a natural physiological function: that it was quite natural during the period for the girl to be free from pain or unusual sensations, and she advised a continuance of the daily bathing in warm water right through the period. Finally, she told the girl that if she felt poorly at those times, she should have medical advice, as such advice now might save much trouble and illness later in life.

The girls under Dr. Clow's care at the school and at a training centre for girls ranged from 11 to 25 years of age. The total number of girls she talked to and questioned was 1818. At the first interview, before any advice had been given, 70 per cent. stated they were free from menstrual troubles. At the second interview, after an interval, this figure was raised to 93 per cent. The general impression throughout the profession was that suffering during the menstrual period was the rule, a state of belief for which the British text-books on obstetrics and gynaecology were largely responsible; even the latest editions of well-known works on the subject perpetuated the idea. She read extracts from several, showing that the authors regarded semi-invalidism as the usual accompaniment of the function. The point to bear in mind was that the authors of text-books were not in touch with normal people, but with the abnormal and diseased; hence medical officers to schools, colleges, and factories, had opportunities of acquiring a much better understanding of the state of affairs in the ordinary girl and young woman. If the text-book teaching on the subject could be replaced by the truer and saner view, one of the greatest stumbling-blocks to women in their careers would have been removed. It was easy to convince the girls, harder to persuade the parents, but hardest of all to convert the members of the medical profession. Most girls began to menstruate at the age of 13, but some began at 12, and a few at 11, and for these girls, full of energy and the joy of life, to be compulsorily deprived of games and other forms of activity two or three days per month was a real hardship. If, as happened only rarely, a girl suffered pain during her first few periods, it was usually only a temporary matter, probably due to a delay in the due balancing of the endocrine secretions. When first Dr. Clow went to her work 67 per cent. said they were healthy at this time. After a short time the number declaring themselves well formed 92 per cent. of the whole, an improvement she attributed chiefly to the continuance of the warm bathing, while much was also due to the continuation of a reasonable amount of exercise and activity, excluding swimming for obvious reasons. Trunk movements she especially advocated. Girls themselves found that unless they had a brisk walk at the beginning of their period they were liable to have pain during it. Dr. Clow declared her belief that if the customary restraint on activity of girls during menstruation were withdrawn, one generation would see the end of most of the cases of dysmenorrhœa; certainly most of the cases of dysmenorrhœa which had developed in these girls were cured by the same means. She was fully aware that severe spasmodic forms which had resisted treatment were not likely to yield to what she was now advocating, and to expect it would be absurd. Only 5 per cent. of the sufferers were compelled to lie down because of it, and this figure among the girls under her observation had now been reduced to 1.5 per cent. If in those who said they suffered there were apparent a hypersensitiveness, she prescribed an analgesic, which helped toleration of the required bathing. In some the dysmenorrhœa occurred only on holidays, and this she found to be due to the restriction as to exercise imposed by the mother at home. The report of the Consultative Committee appointed by the Board of Education issued three months ago on differentiations in the curricula for boys and girls stated that it was safer for girls not to have their games and drilling during the period; on the other hand, THE LANCET¹ published an address by Dr. Sarah Gray, of Nottingham, warning against the

¹ THE LANCET, 1922, ii., 1261.

dangers of the periodical rest, remarking that exercise might become the future form of treatment for both menorrhagia and dysmenorrhoea. In America there seemed to be a much more healthy attitude towards the subject, and Dr. Clow read extracts from several declarations on the subject which supported her own contentions. Eighty-four per cent. of the students at the training college under the speaker's inspection were accustomed to make no difference in their habits and games during the period, and 84 per cent. of the students were free from menstrual disability; these figures subsequently rising to 93 per cent. and 95 per cent. respectively. Turning to the industrial side, she said that over 10 per cent. of the girls in an industrial establishment might be expected to report at the hostel during any given month, and three-fifths of the staff of one establishment reported during a year on account of menstrual trouble, excluding those so severely ill that they had to remain at home. Prolonged standing was said to be the chief contributing factor to these troubles. In America it was urged that there should be a systematic and detailed keeping of menstrual notes, but Dr. Clow thought this would encourage too much concentration on the function, and might lead to introspection. She concluded by advocating the issue of leaflets setting out briefly and plainly the main reasons, which she had elaborated, for regarding menstruation as a natural and not a pathological function.

Discussion.

Dr. C. E. SHELLY expressed the hope that Dr. Clow's paper would receive wide publicity, as it was a valuable contribution to the subject. He knew many, including nurses, who continued as usual during the period, even to the taking of their cold bath. But the chief support of Dr. Clow's thesis he knew of was supplied by the case of the fisherwomen of Brittany. The fishing vessels had to beach some distance out, and the women waded, carrying the fish, through the surf, and walked to the market, where they stood in their wet clothes and sold their catch. Yet they had practically no menstrual troubles; these only came on when, through stress of bad weather in the winter, this arduous work ceased.

Dr. MARY BLAIR said she had put into practice the principles Dr. Clow had been advocating, as she regarded them as thoroughly sound. There prevailed extraordinary ignorance on the subject of menstruation. She saw medically many women candidates for Civil Service appointments, and probably 90 per cent. of them did not take baths or exercise during their period. Her advice was that girls should look after their baths, constipation, and exercise; if they had dysmenorrhoea, this treatment cured most of them. She agreed as to the desirability of the issue of a simply-expressed leaflet on the subject.

Dr. SYBIL OVERTON also agreed, and mentioned specially the prevalence of indigestion in school-girls.

The PRESIDENT complimented Dr. Clow on her contribution. The main obstacle to her crusade being successful was that those who were looked up to as the leaders of the profession in these matters were concerned with dealing with the abnormal; therefore it might be a long time before she got her way. Many text-books were out of date by the time they were published. Dr. Clow could not expect to convince the majority of grown women; the great hope was from the education of the young, teaching them that menstruation was a perfectly natural function, and that the less notice they took of it in ordinary life, the better. He believed this view would prevail if only the medical women would continue this teaching and investigation on the lines Dr. Clow and others had adopted.

Dr. CLOW briefly replied. She said she had met with some cases of vomiting during the period, but sometimes she was able to check it by giving a powder and suggesting to the girl that she had nothing wrong with her. She was convinced it was sometimes a psychological upset.

Reviews and Notices of Books.

INTERFACIAL FORCES AND PHENOMENA IN PHYSIOLOGY.

By Sir WILLIAM M. BAYLISS, M.A., D.Sc., F.R.S., LL.D., Professor of General Physiology in University College, London. London: Methuen and Co., Ltd. 1923. Pp. 196. 7s. 6d.

THIS book, based on the Herter Lectures given in 1922, contains an account of the various physiological phenomena, in which an important part is played by the forces which manifest themselves at the boundaries where immiscible substances are in contact with each other. Much of the matter is devoted to the subject of the colloids, in which the great development of surface is responsible for many properties of physiological significance; one of these properties is that of adsorption. As particular instances of colloidal systems, where remarkable phenomena are displayed, the properties of haemoglobin and of enzymes are discussed. The cell-membrane furnishes another instructive example of surface phenomena, the study of which leads up to a chapter on electrical phenomena in cells, and one on the properties of protoplasm from the physico-chemical point of view. A chapter on muscle, nerve and gland cells, and a general survey of the subject completes this thoughtful and readable book. Some of the remarks in the last chapter are well worth quoting; for example: "It is indeed difficult or impossible to find a scientific justification for the separation of biochemistry from biophysics." "No physiological laboratory can avoid the necessity of its own chemical department." "It was always insisted on by Claude Bernard that physiology is an independent science, to be cultivated for its own sake and irrespective of ultimate practical applications." Sir William Bayliss holds that the movement in some quarters to confine the physiology taught to the medical student to that part of the science which is at the moment seen to be of immediate direct application to clinical practice is to be regretted. In view of the overcrowding of the curriculum there is something to be said for this movement, but the difficulty remains that we can hardly foresee what branches of physiology are likely to be essential to medicine ten or even five years hence, when the student goes forth to practise. Many qualified men are even now regretting the small amount of time allotted to practical biochemical investigations in their student days.

ORTHOPÆDIC SURGERY.

By Sir ROBERT JONES, K.B.E., C.B., F.R.C.S., &c., Lecturer on Orthopædic Surgery, Liverpool University; and ROBERT W. LOVETT, M.D., F.A.C.S., Professor of Orthopædic Surgery in Harvard University. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. With 712 engravings. Pp. 699 + xv. 42s.

IT is some time since any authoritative work on civil orthopædics has appeared in English, and the recent appearance of the "Orthopædic Surgery" of Sir Robert Jones and Prof. Lovett is welcome both on account of the eminence of its authors and of the need of an up-to-date book on this special branch of surgery. It may be taken to supersede the work by Bradford and Lovett on the same subject, while it has the additional advantage of presenting to us the wealth of experience and the ripe judgment of the late Director of Military Orthopædics in this country. The Boston school of orthopædic surgery occupies a pre-eminent position in the United States, and no better representative of that school could be found than Prof. Lovett. The authors have overcome the difficulties of collaboration at such a distance from one another with success. A major part of the work is taken up by the subject of diseases of bones and joints, and a large proportion of this section is devoted to the

ever-present problem of the treatment of surgical tuberculosis. In writing of these diseases the authors wisely reject the method by which each kind of affection is described as a separate entity, and prefer to describe joints in general and particular with reference to their reactions to disease, afterwards discussing the phenomena presented by the various parts when they react to each morbid stimulus. Traumatic affections of joints in general are first dealt with, then come descriptions of the effects of injury on each of the individual joints. For that troublesome affection known as "slipping patella" the authors recommend Goldthwait's operation as the most generally satisfactory, but other procedures are described. The well-known methods of Sir Robert Jones for treatment of internal derangements of the knee-joint are fully set forth, as also is the treatment of recurrent dislocation of the shoulder.

It is probable that no class of case offers such a fruitful field for the proceedings of the bone-setter as does that classified under "stiff-joint." Especially is this true of the looser adhesions which persist after treatment of more serious conditions, and which are often the cause of much disability and pain to the patient. As to when, how, and where to break down these adhesions and thereby restore free and painless movement, there can be no better guide than that provided in Chapter V. Tuberculosis of bones and joints is dealt with on up-to-date principles in five important chapters. It must be a legitimate source of pride to orthopaedic surgeons that the principles enunciated by them during the years when general surgeons were freely exercising and amputating tuberculous joints, are now everywhere triumphant, especially when combined with open air and sunshine. These chapters will be found to contain most of what is to be known of the therapeutics of these forms of disease. The chapter on arthritis deformans recalls to our minds the fact that although surgery cannot cure, it is capable of much improving the functional ability in these patients, by substituting a stiff and painless joint for a painful and partially movable one. In this disease arthrodesis offers far greater prospects of benefit than arthroplasty as at present practised. Diseases of bones and joints caused by organisms other than *B. tuberculosis* are not so generally regarded as coming under the care of the orthopaedic surgeon, but since their treatment is governed by the same principles their inclusion here is fully justified. Haemophilia, intermittent synovitis, Charcot's disease, gout, muscle and bone atrophy, and functional contractions and deformities occupy a short but useful chapter. Of gout we are told that it is more common in Great Britain than in America. If that is the case it must be a very rare disease across the Atlantic, for manifestations of true arthritic gout are now rare in England and seem to be becoming more rare year by year. Even the "suppressed gout," dear to the puzzled practitioner and to the well-to-do sufferer, who is lattered by the attribution to him of no vulgar disorder, seldom figures nowadays in a diagnosis. Those obscure back troubles which cause so much suffering to the patient and tax the resources of surgery and medicine, are well discussed in the chapter on the affections other than tuberculous of the bones and joints of the spine and thorax. Their prevention and their cure occupy more of the time and thoughts of surgeons in the United States than of those in this country, but here, too, the subject is important enough for us to recommend this chapter also to British readers. In the chapter on affections of adult bone we welcome an expression of opinion by Sir Robert Jones that in Paget's disease severe deformities of the long bones should be corrected by operation, especially since by relieving tension such proceedings generally also relieve pain.

Spastic paralysis and anterior poliomyelitis—especially the latter—are to the orthopaedic surgeon the most important of the diseases of the nervous system. In the treatment of the latter disease recent epidemics in the United States have lent great authority to the already wide experience of Prof. Lovett, and

sound advice on this subject is to be found in Chapter XXI. The chapter on muscle training, which is of paramount importance in the re-education of these cases, should also receive special study. The treatment of congenital deformities has become more or less stereotyped, but the chapter on congenital dislocation of the hip should not be passed over without notice. The bloodless method may now be considered to hold the field. We must regretfully admit that if there is nothing strikingly new in the chapter on lateral curvature of the spine, it is because the therapeutics of this opprobrium chirurgiae are less successful than their prophylaxis.

The authors disclaim any encyclopædic character for their work, and it is clear that such a book on orthopaedic surgery would have needed at least two such volumes as this. The methods here set forth are those that have found favour in the practice of the authors, and for a full account of other methods it will still be necessary for the earnest student to read other manuals and monographs. There are, too, some lacunæ, such as the lack of reference to Dupuytren's contraction of the palmar fascia. But readers may rest assured that in this book they will find a notable and authoritative contribution to orthopaedic literature. The book is printed in clear type and is well and freely illustrated. A fuller index would have been a valuable addition.

ANIMAL PARASITES AND HUMAN DISEASE.

Second edition. Revised by ASA C. CHANDLER, M.S., Ph.D., Instructor in Biology, Rice Institute, Houston, Texas. London: Chapman and Hall, Ltd.; New York: John Wiley and Sons, Inc. 1922. Pp. 572. 22s.

HUMAN parasitology, at any rate as far as the tropical parasites are concerned, has undergone in recent years kaleidoscopic changes, and the author has attempted to trace in simple and intelligible language the course of these researches. Although a great deal of information has been culled from current literature, the result cannot be said to be satisfactory, either to the lay reader or to the student. The former will not grasp the import of the many technical terms introduced, while the latter will find the mass of details and scientific data to be presented in an uncritical spirit. The illustrations are poor and are adapted from other well-known works on parasitology.

The subject-matter embraces the greater part of tropical medicine, as the list of references, standard works, and periodicals which are given as sources of information will show; from these the work has apparently been compiled, and there is little evidence of originality.

WEIL'S DISEASE.

Über die Pathologische Anatomie der Spirochaetosis Ictero-hæmorrhagica Inada (Weilsche Krankheit). By Dr. RENJIRO KANEKO, Professor in the Imperial Kyushu University of Fukuoka. Vienna: Rekola Verlag. With six coloured and two uncoloured plates. 1922. Pp. 181.

THIS work is an exhaustive monograph embodying the results of the author's researches upon the pathology of Weil's disease, a common malady in Japan. In the preface the author gives his reasons for the steps he has taken to have this work produced, and it would appear that, owing to the publication of his earlier researches on this subject in Japanese, his work, the importance of which cannot be denied, has not received the recognition in Western literature that it deserves. The pathological changes of Weil's disease as they affect every organ of the body are described with the most minute detail, especial attention being given to the liver, where focal necrosis, with its attendant changes, can be studied, but somewhat similar changes are present in the cardiac and somatic muscles. The quite characteristic kidney changes are also minutely described, and, in fact, the whole report is

so detailed and laborious that it cannot be adequately digested save by the advanced student of this subject. It therefore fits in as a necessary complement to the monograph of Martin and Pettit where the symptomatology and ætiology of infectious jaundice are described at length.

Fine plates adorn the monograph.

THE MIDWIFE: HER BOOK.

Edited by ALICE GREGORY, Hon. Secretary of the British Hospital for Mothers and Babies, Woolwich. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 268. 7s. 6d.

THIS little book is written by three of the original staff of the British Hospital for Mothers and Babies and by some of their pupils. It contains a number of chapters dealing with various matters concerned with the training and practice of midwives and maternity nurses which give a great deal of most valuable and useful information. The rest of the book is made up of a number of sketches of patients, their friends, and their surroundings, written with a mixture of humour and pathos which must appeal strongly to those who have worked in similar conditions and are familiar with the scenes depicted. A charming little book which should do much to help those who, as the editor says in her preface, are putting up a good fight in circumstances often depressing and difficult.

THE DAYS OF A MAN.

By DAVID STARR JORDAN. In two volumes: Vol. I., 1851-1899; Vol. II., 1900-1921. London: George G. Harrap and Co., Ltd. 1922. Pp. 710-906. £3 3s.

THERE is a story of an enthusiastic lady who, on visiting Venice for the first time, wrote to a friend, "I am really in Venice, sitting at my window overlooking the Grand Canal, and drinking it all in. At times life seems almost too full." Dr. Jordan must, we think, have felt the same many times during his long and busy life, the incidents of which are noted in two large volumes. He seems to have been everywhere and done everything; he has taught and farmed, bred merino sheep, and studied fishes. He has been president of two American Universities, that of Indiana and of Leland Stanford Junior University. He has served on Fishery Commissions in the Pacific, Alaska, and Japan, as well as on a Sealing Commission. He has travelled nearly all over the world and the chief of his multifarious industries has been the most laudable one of working for peace. He has met people in every rank of society and has an eminently catholic mind. He reminds us in many ways of Disraeli's "Mr. Vavasour," who "saw something good in everybody and everything, which is certainly amiable and perhaps just, but disqualifies a man in some degree for the business of life, which requires for its conduct a certain degree of prejudice." Anyway, he has produced a remarkably interesting book, in which, among other things, we find that he traces his ancestry back to Charlemagne. Dr. Jordan possesses a medical degree, not honorary, but given after what would be now called a most inefficient training, a fact which he himself notes. It is interesting to see that he says that the Indiana Medical College was originally a branch of the State University, but in the 'sixties the connexion became purely nominal, as the State legislature voted to discontinue both its medical and law schools, asserting it to be "no duty of the people to help men into these easy professions." It is not our business to say whether the law is an easy profession, but Heaven help the man who goes into the medical profession thinking that easy.

We cordially recommend Dr. Jordan's book, for the reader will find something worth reading on every page.

JOURNALS.

JOURNAL OF LARYNGOLOGY AND OTOTOLOGY. March and April, 1923.—In the March number Mr. D. E. S. Wishart, of Toronto, gives an interesting and instructive account of the neuro-otological examination of 11 verified cases of brain-tumour. The cases have been divided into three groups: (a) Subtentorial—intra-cerebellar, (b) subtentorial—extra-cerebellar, and (c) supra-tentorial tumours. The clinical examinations and the final verification by operation or autopsy are very fully recorded. The intra-cerebellar tumours did not affect the hearing, but did interfere with the vestibular function; this interference tended to be bilaterally symmetrical, and the reflexes from the vertical canals were affected before those from the horizontal canals. Extra-cerebellar tumours—that is, growths in the cerebello-pontine angle—affected both cochlear and vestibular functions of the same side. The two cases of supra-tentorial tumours occurred in the frontal lobes and did not interfere with either function. The caloric tests of the vestibular function were used more than the rotation tests.—Dr. Albert A. Gray records observations on four cases of otosclerosis who hear better in circumstances in which one would expect the hearing to be worse, and he labels this condition "otosclerosis paradoxus." One case heard better whenever she had a cold in the head, another when suffering from her annual attack of hay-fever; the third, feeling faint in an overheated room, went to an open window, when she heard quite clearly for about two minutes; while the fourth, feeling faint after a long motor ride, took some brandy with a similar effect.—Mr. T. B. Layton contributes a suggestive discussion on malnourishing and allied conditions of deafness, ranging from pure functional deafness to a conscious and deliberate attempt to deceive.—The April number begins with a speech by Sir Sydney Russell-Wells on the aim and use of special hospitals, delivered at the annual dinner of the Central London Ear and Throat Hospital. In his opinion the special departments of the general hospitals are the best for undergraduate teaching, but the special hospitals are ideal for post-graduates. Special hospitals could and should coöperate to form what would quickly become the London Post-Graduate School.—Drs. A. Logan Turner and Thomas Sprunt describe a case in which a finger-like process projected down from the lower pole of the left tonsil and contained islands of cartilage; they consider that the histology of this case supports the theory that such cartilaginous nodules are of embryonal origin.—Mr. J. D. Lithgow discusses the mechanism of oculo-vestibular coördination as a factor in the survival of the species, in view of the value of such mechanism in attack and escape.—Mr. B. Seymour Jones reports the case of a small sessile growth on the left vocal cord of a man aged 64, removed by thyrotomy with Lambert Lack's technique, and reported by Mr. Wyatt Wingrave to be a "mesothelioma growing in cylindrical masses, undoubtedly malignant," to be classed as a "perithelioma of mesothelial genus." There has been no recurrence after three years.—Mr. Nicol Rankin reports three cases of zygomatic mastoiditis, two of which showed extensive disease of bone with exposure of the dura mater.

BRITISH JOURNAL OF OPHTHALMOLOGY. March, April, and May, 1923.—In the March issue F. M. B. Walshe discusses a Case of Secondary Carcinomatous Infiltration of the Pia-Arachnoid of the Brain, presenting exclusively Ocular Symptoms during Life: Meningitis Carcinomatosa. Commonly, this form of carcinomatous involvement of the central nervous system produces a clinical picture akin to that of an acute meningitis. This case began with diplopia and headache—the former due to paralysis of the left external rectus, followed by optic atrophy of the left eye without manifest loss of visual field and no other localising symptoms. Post mortem naked-eye examination revealed little abnormal, except that

the left abducens nerve was slightly thickened and opaque in appearance. Microscopic examination revealed that the pia-arachnoid in the regions of the thickening, and also in places where no thickening was visible to the naked eye, was the seat of a malignant infiltration by a cubical-celled carcinoma. There was an intense invasion of the trunk of the sixth nerve and a less intense invasion of the optic nerve. The isolated occurrence of ocular symptoms from such a cause, says the author, must be extremely rare, but he gives references to some more or less similar cases in German literature. It was supposed that the growth was secondary to a primary focus in the alimentary tract, although there was no proof of this. On the pathological side the extreme fineness of the meningeal involvement, and the fact that at autopsy it was entirely missed, indicate the importance of a routine examination of the meninges in all cases in which visceral carcinoma has been complicated by the development of definite symptoms referable to the nervous system in its clinical course.—R. E. Wright discusses the Importance of Radiography in Doubtful Cases of Optic Atrophy with Special Reference to Pituitary Disease. Out of 40,000 eye-patients seen in Madras there were eight in which trouble in the neighbourhood of the sella was suspected. In three of these the optic atrophy so overshadowed all the other symptoms that without radiographs the cases might easily have remained undiagnosed. The paper is chiefly of interest on account of the radiographic prints and notes by Captain T. W. Barnard.—There is also a paper by Dr. H. Hartridge expounding Mrs. Ladd Franklin's theory of colour-vision.—In the April issue Alan W. Sichel writes on So-called Glassworkers' Cataract Occurring in Other Occupations, with report of two cases. Following Criddland, the writer proposes to call this form of cataract which occurs in workers subjected to great heat "ray cataract."—George Young communicates a paper on Macular Perception in Advanced Cataract. The author has devised a method of testing whether the macular function is or is not intact, which he has found useful in deciding whether or not to operate in cases of cataract.—Leslie Buchanan, in a paper entitled Monocular Optic Neuritis, relates four cases in which the monocular optic neuritis was due to exposure to cold. In each case recovery was complete.—The number also contains articles by J. Lockhart Gibson on Siderosis, and by A. Ticho, of Jerusalem, on Ophthalmomyiasis, the name used to describe the several symptoms caused in the eye and its annexes by the larvæ of diptera.—In the May issue, among other papers, there is one by I. Neame on Two Cases of Tumour of the Optic Nerve, and one by F. A. Williamson Noble on Endothelioma of the Orbit, both of them well illustrated.—R. R. James recalls a paper by Sir D'Arcy Power in THE LANCET (1895, i., 1357) dealing with the Ophthalmic History of Samuel Pepys, and offers an alternative explanation for Pepys's eye troubles.

THE TROPICAL DISEASES BULLETIN, May, 1923, contains a review of recent literature on blackwater fever, by Warrington Yorke. The review includes notice of papers of considerable interest in view of the reputed discovery of spirochætes in the blood in this disease by M. Blanchard and G. Lefrou: the organisms are demonstrated by a method of triple centrifugation and have been named *Spirochæta biliohæmoglobinuriae*, but are possibly identical with *Leptospira icterohæmorrhagiae*. Plague, cholera, and enteric fevers are reviewed by J. H. Tull Walsh; undulant fever, pappataci, and Rocky Mountain spotted fever, by P. W. Bassett-Smith; beriberi and scurvy are also dealt with by the same authority. There are notes on amœbiasis, dysentery, and sprue by P. Manson-Bahr. The section on Medical Zoology is by A. Alcock, and a Miscellany is compiled by A. G. Bagshawe.

THE GENERAL MEDICAL COUNCIL.

THIRTEEN penal cases came before the Council during the session. The cases were heard in public; the Council deliberated upon them in camera, and the decisions were publicly announced as usual. The cases were briefly as follows:—

TUESDAY, MAY 29TH.

The Case of James Law.—This practitioner, judgment upon whose case was postponed from December, 1922, till November, 1923, was reported to have died in March.

The Case of Robert Bell.—This practitioner, registered as of 15, Half Moon-street, Mayfair, London, W. 1, appeared before the Council in May, 1922, on a charge of treating a patient for "inoperable" cancer without seeing or examining the said patient, the attention of the Council having been drawn to the case by a committee of Warrington practitioners. The facts alleged were proved to the satisfaction of the Council in 1922; but in view of the circumstances of the case, and in the light of evidence as to Dr. Bell's unexceptionable conduct in the interval the Council, after the usual deliberation in camera, did not see fit to direct erasure of his name from the Medical Register.

The Case of William Joseph Ryan.—W. J. Ryan, registered as of 126, King's Cross-road, London, W.C. 1, had been convicted of drunkenness and fined on three occasions between 1918 and 1921. The Council, in the light of Mr. Ryan's promise to abstain from drink in the future, did not see fit to direct erasure of his name from the Medical Register.

The Case of David Charles Williams.—D. C. Williams, registered as of Brynffedwen, Treherbert, Glam., was found to have been guilty of a breach of the Council's notice with regard to the practice of "covering," having permitted an unregistered person (his "dispensary attendant") to practise in his presence as if he were registered in the Dentists Register. Mr. Williams had supported his assistant's claim to be so registered by a certificate in which he stated that the said assistant had performed "all operations usually entrusted to dentists." The Dental Board, however, had found that the assistant could claim only the status of a mechanic, and had not admitted his name to the Register. The terms of Mr. Williams's certificate, therefore, laid him open to a charge of covering. After deliberation the Council, believing that Mr. Williams had not realised the gravity of his position in the matter, postponed judgment for six months, with the usual proviso as to conduct meanwhile.

The Case of John Francis Smyth.—J. F. Smyth, registered as of Oakdale, Blackwood, Mon., was summoned on a charge of bigamy and falsification of a marriage register, for which he was sentenced in November, 1922, at Swansea Assizes, to six months' imprisonment. The Council found that although the facts alleged were proved, the presumption of the death of the wife had been reasonable, in consideration of which they did not see fit to direct erasure of Mr. Smyth's name from the Medical Register.

WEDNESDAY, MAY 30TH.

The Council continued their consideration of penal cases.

The Cases of Frederick Henry Browne and Benjamin Damer Merrin.—These two cases were considered together, the practitioners in question (registered as of Hillside, Upholland, Wigan, and of Cambridge House, Cambridge-road, Rathmines, Dublin, respectively) having signed certificates for National Health Insurance purposes, and given prescriptions, all relating to the same patient, without having first seen or examined the said patient. The certificates and prescriptions had formed the subject of an inquiry by a Medical Service Subcommittee under the National Health Insurance Acts, and the cases were reported to the Council by the Ministry of Health. The finding of the Council was that the

certificates had been given in a lax and careless manner, and that such laxity was worthy of severe censure. Having regard to the previous good characters of the practitioners and to the warning received by them during the course of the proceedings, the Council did not see fit to direct erasure of their names from the Register.

The Case of Nicholas Cullinan.—N. Cullinan, registered as of Dempsterville, Felling-on-Tyne, had been summoned to appear on a similar charge—i.e., of signing certificates for National Health Insurance purposes without having seen or examined the patient to whom they related, with the additional charge of permitting his (Dr. Cullinan's) wife to issue a certificate in his name. The case was reported to the Council by the Ministry of Health. The Council warned this practitioner concerning the gravity of laxity and carelessness in the issuing of certificates, and did not see fit to direct erasure of his name from the Register.

The Case of James Samuel Risien Russell.—This practitioner, registered as of 44, Wimpole-street, London, W. 1, was summoned to appear before the Council on a charge of having issued in January, 1923, to a former patient, in connexion with a claim to a disablement allowance under the War Risks Compensation Scheme, a certificate stating (inter alia) that he was at the date of the certificate under his (Dr. Russell's) care and treatment, and was justified in applying for a pension, as his present disabilities made him quite unfit to ever resume his duties; whereas he (Dr. Russell) had not seen or examined the said patient since 1918. This case was reported to the Council by the Marine Department of the Board of Trade.

The main facts of the case, made plain during the course of the proceedings, were that Dr. Russell had recently parted with a very experienced secretary when the certificate was given; that he had frequently entrusted the drafting of certificates to the said secretary, and that his new secretary, who had previously acted in a junior capacity, was at the time greatly overburdened with work. He had been requested by a former patient, Mr. N. S. Wicks, to supply him with another certificate to replace one given in 1918, which Mr. Wicks had lost. Dr. Russell instructed his secretary to look up the certificate issued in 1918 and draw up another on the same lines, "bringing it up to date." When the certificate was brought to him to sign Dr. Russell had not his glasses with him; he asked the secretary to tell him its contents, and she, instead of reading it through, merely gave him the gist of what she had written before he signed it.

Two letters referring to the certificate were addressed to Dr. Russell by the Board of Trade, but owing to pressure of work upon the secretary these were not answered, or apparently seen by Dr. Russell at all, until the Board of Trade had put the matter in the hands of the General Medical Council.

THURSDAY, MAY 31ST.

The Case of James Samuel Risien Russell (continued).—The Council immediately proceeded to consider this case in camera. The decision was later announced, the Council finding that the facts alleged against Dr. Russell had been proved upon his own admissions. His statements had been seriously weighed by the Council, in their bearing on the degree of culpability attaching to the facts proved, and it was decided that although they might serve to explain how the misleading certificate came to be framed and attested, they did not remove the discredit of reprehensible carelessness in the discharge of a serious professional duty. Such carelessness might readily amount to disgraceful conduct and merit the stern judgment of the Council. It certainly called for grave professional censure. The Council believed, however, that Dr. Russell had very imperfectly realised his professional responsibilities, and also that the proceedings might warn him effectively of the danger attaching to such methods, and were prepared to assume that he did not of set purpose intend his certificate to mislead or deceive. The

Council, therefore, did not direct the Registrar to erase Dr. Russell's name from the Register.

The Case of James Robert Stott.—J. R. Stott, registered as of 4, Brunswick-terrace, Craigie, Perth, was summoned to appear on a charge of having by countenance or assistance knowingly enabled a woman not certified under the Midwives Act, 1912, to attend women in childbirth, and of having in some cases signed maternity benefit certificates, enabling the woman in question to practise as if she were certified under that Act. The complainants in this case were the Surrey County Council, who were represented by Dr. H. Joseph Cates, their medical officer of health. Dr. Stott attended, accompanied by Mr. Oswald Hempton, solicitor, instructed by the Medical Defence Union. It was argued during the course of the proceedings that Dr. Stott was not aware, until an inquest was held on a child whose mother he had attended after the birth, that the woman in question (who had been present at the birth) was not a certified midwife. He thereupon informed her that he could not attend in cases where she had been called in to a confinement. There was no evidence that any case attended by this woman was not properly cared for by her.

The Council found the facts alleged against Dr. Stott to have been proved, and postponed judgment until their May session, 1924, making the usual requirement as to evidence of behaviour in the interval.

FRIDAY, JUNE 1ST.

The Case of Walter Ernest Tate.—The case of W. E. Tate, registered ("Dentist, 1921") as of Dulais House, Alfred-street, Neath, was considered by the Dental Board of the United Kingdom on May 9th. Mr. Tate had been convicted in February at Guisborough Petty Sessions of embezzlement, and the Dental Board found that his name ought to be erased from the Dentists Register. The Council directed that it be erased.

The Case of James Daniel Williams.—The case of J. D. Williams, registered ("Dentist, 1921") as of 152, Ladybrook-road, Sparkbrook, Birmingham, was considered by the Dental Board of the United Kingdom on May 9th. Mr. Williams had been convicted at Exeter Assizes in November, 1906, of using an instrument to procure abortion, and sentenced to five years' penal servitude. He was at that time a chemist. In a statutory declaration made by him on April 24th, 1922, when applying for registration under the Dentists Act, 1921, he stated that he had "never been convicted in H.M. Dominions or elsewhere of an offence which, if committed in England, would be a felony or misdemeanour." The Dental Board found that Mr. Williams's name ought to be erased from the Dentists Register. The Council directed that it be erased.

The Case of Ernest Mayer.—E. Mayer, of Swiss nationality, registered as of Tynewold Villa, Treherbert, Glam., was summoned on a charge of (1) permitting posters printed at his expense to be exhibited at a colliery and in houses, inviting workmen desirous of choosing himself as their panel doctor to do so, and giving directions as to the means of effecting the transfer; and (2) giving implied, if not expressed, consent to house-to-house canvassing carried out with the same intention. The case was reported by the Welsh Board of Health. The Council found that the first charge was proved, and the second not proved. The decision of the Council was postponed till the November session, with the usual proviso as to character and conduct in the interval.

The Case of Edward Newton.—E. Newton, registered as of 60, St. Chad's-road, Tilbury, Essex, was summoned on a charge of (1) causing or permitting to be exhibited in a workmen's club at Tilbury a notice headed "National Insurance," and stating that he attended there on certain days, and that anyone wishing to transfer to his panel could do so without medical cards; (2) causing or permitting verbal announcements to be made in that club, and in

another club in Tilbury, relating to transfer to his panel; (3) distributing National Health Insurance cards to persons who were not patients of his or on his panel list.

Dr. Newton attended, accompanied by Mr. Alexander Neilson, K.C., with him Sir Robert Aske, his counsel, instructed by Messrs. Le Brasseur and Oakley, solicitors to the London and Counties Medical Protection Society. The complainants were the Medical Defence Union, represented by Mr. Oswald Hempson, solicitor. In the course of proceedings it appeared that the secretary of the club was fully responsible for the drawing up and displaying of the notice "for the benefit" of members of the club, and that two members who were proved to have transferred to Dr. Newton's panel after the notice was displayed had done so entirely on their own initiative, without having seen the notice.

SATURDAY, JUNE 2ND.

The Case of Edward Newton (continued).—The hearing of this case was concluded. The Council found that none of the charges against Dr. Newton had been proved.

This concluded the hearing of penal cases.

REPORTS OF COMMITTEES AND OTHER BUSINESS.

Province of Quebec.

On Friday, June 1st, the Executive Committee reported that at their meeting on May 28th they considered an application from the College of Physicians and Surgeons of the Province of Quebec for the recognition of their licence, granted, after examination by a Board appointed by the College, to graduates in medicine of Universities outside the Province. The Committee directed as follows: "That the Registrar be directed to register in the Colonial List of the Medical Register any person who holds the licence or membership of the College of Physicians and Surgeons of the Province of Quebec, granted after examination in medicine, surgery, and midwifery by the Board appointed for the purpose by the College, together with the licence to practise in the Province of Quebec, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886."

The report was received and entered in the minutes.

Warning Notices.

The following report by the Executive Committee was adopted:—

At the meeting of the Council on Dec. 1st, 1922, the Executive Committee, in consultation with the legal advisers, were directed to consider and report upon the expediency of amending the Council's Warning Notice No. 5, with respect to advertising and canvassing so as to make its scope more clear and comprehensive. (Minutes, 1922, p. 91.) After careful consideration, in conjunction with the legal advisers, the Committee recommend that the preamble of the notices be the same as before, subject to one or two typographical alterations, the citation of the Dentists Act and reference to dentists being omitted; that a new paragraph, No. 4, relating to dangerous drugs, be inserted; that No. 4 become No. 5; that No. 5 as amended become No. 6; that No. 6 become No. 7; and that a new paragraph be added at the foot.

The new paragraph No. 4, Dangerous Drugs, is as follows:—

"The contravention by a registered medical practitioner of the provisions of the Dangerous Drugs Acts and the Regulations made thereunder may be the subject of criminal proceedings, and any conviction resulting therefrom may be dealt with as such by the Council under the powers given them by Section 29 of the Medical Act, 1858. But any contravention of the Acts or the Regulations, involving an abuse of the privileges conferred thereunder upon registered medical practitioners, whether such contravention has been the subject of criminal proceedings or not, will, if proved to the satisfaction of the Council, render a registered medical practitioner liable to have his name erased from the Register."

The new paragraph No. 6, Advertising and Canvassing (old No. 5 amended), is as follows:—

"The practices, by a registered medical practitioner—(a) of advertising, whether directly or indirectly, for the purpose of obtaining patients or promoting his own professional advantage; or, for any such purpose, of procuring or sanctioning or acquiescing in the publication of notices commending or directing attention to the practitioner's professional skill, knowledge, services, or qualifications, or depreciating those of others; or of being associated with or employed by those who procure or sanction such advertising or publication, and (b) of canvassing or employing any agent or canvasser for the purpose of obtaining patients; or of sanctioning, or of being associated with or employed by those who sanction, such employment;—are in the opinion of the Council contrary to the public interest and discreditable to the profession of medicine, and any registered practitioner who resorts to any such practice renders himself liable on proof of the facts to have his name erased from the Medical Register."

The following is the new paragraph to be added at the foot:—

"The attention of all registered medical practitioners is called to the warning notice which is issued by the Dental Board of the United Kingdom to all registered dentists, and which can be obtained on application to the Registrar of the Dental Board, 44, Hallam-street, London, W. 1."

In the short discussion on the above report, Dr. Bolam said that it was abundantly evident that paragraph No. 6 was on the lines desired by the profession. There was a wide feeling in the profession that the General Medical Council should be in a strong position to take action in cases of "prepared" publicity. This regulation would undoubtedly conduce to a better state of affairs than had hitherto existed.

Mr. Turner spoke of the extraordinarily good effect of the Council's debate on this subject during the November session, 1922. As far as London was concerned, there had been an enormous decrease of practices to which objection might be taken.

Sir Jenner Verrall expressed his satisfaction that the notice provided for the taking up of cases of small infringement of the Council's regulations.

The President pointed out that the action of the Council was not limited by the text of the warning notice.

Regulations Affecting Practitioners.

Mr. Turner moved—

"That the Lord President of the Council be requested to represent to the Government Departments concerned that it is desirable, in the public interest, that any proposed changes in the Dangerous Drugs Regulations, or similar Regulations affecting the legal obligations of medical practitioners, should be communicated to the General Medical Council before they are finally adopted."

Dr. Macdonald seconded the motion. The President made a statement as to the relations of the Committees of the Council and the President with Government Departments when asked to comment on any matters of public interest which came within the purview of the Medical Council. The Council, he said, had no right to receive drafts or copies from Government Departments. Only lately had the courtesy been extended to the Council; and any claim of right would be resented. After some discussion, Mr. Turner withdrew the motion.

Pharmacopœia Committee.

This report, on the motion of Sir Nestor Tirard, was received and approved. The number of copies of the British Pharmacopœia, 1914, sold by the publishers between Nov. 25th, 1922, and May 28th, 1923, was 946 copies. The number sold in the year ending May 28th, 1923, was 2083 copies. The total number sold since the date of publication is 44,437. The Committee had carefully considered a communication from the Privy Council, transmitting a suggestion from the Pharmaceutical Society that the pharmacopœial formula for liquor strychninæ hydrochloridi should be altered, so as to include therein 0.004 per cent. of brilliant green. The Committee, in formulating their

grounds of opposition to the proposal, stated that the question of distinguishing certain poisons by means of artificial coloration is a general one, which merits consideration in connexion with the revision of the Pharmacopœia, but should not be summarily determined, as is proposed, in the case of a single preparation of a single poison. For this and other reasons the Committee were not prepared to advise the General Council to direct this compulsory coloration.

Education Committee.

This report was received and entered in the minutes on the motion of Dr. Mackay (chairman of the Committee), who referred to the advantage which had accrued from the combination of the Registration and Education Committees, carried out at the Council's November session, 1922. Among the items of the report was one relating to new regulations. The Committee had considered correspondence from the British Dental Association asking that dental students be allowed to count *pro tanto* the passes they produced in certain subjects at an examination of an inferior standard passed prior to Dec. 31st, 1922, and to pass in the remaining subjects at the higher standard this year; and that such students be permitted to pass in the remaining subjects at the standard in force prior to Dec. 31st, 1922. The Committee resolved: (1) That medical and dental students be allowed to count *pro tanto* any subjects passed at the inferior standard above referred to; and (2) that all such students must complete their examination in general knowledge by passing in the deficient subjects at the standard at present in force.

Satisfactory evidence as to visitation having been obtained, Worksop College had been added to the list of institutions recognised by a licensing body and approved by the Council.

The recommendations in the report were adopted by the Council.

Examination Committee.

This report was received and its recommendations adopted on the motion of Sir Norman Walker (chairman of the Committee).

Among the items of the report was one relating to the inspection of examinations. By direction of the President, the Chairman "visited" the final examination in midwifery of the University of Cambridge in December, 1922. The substance of his report was to the effect that, with the exception of No. 19 old series (clinical examination), all the recommendations of the Council had been accepted, and were actually in force on the occasion of his visit. Further, while the University authorities still held that it was not practicable to hold a clinical examination in midwifery and gynaecology in Cambridge, they would in future require every candidate to produce a certificate from his teacher stating that he had regularly and diligently attended a practical course on these subjects, and had acquired a competent knowledge of them. As these changes bring the final examination in midwifery in the University of Cambridge into line with nine other licensing bodies, the Committee think it unnecessary to take any further action in the meantime.

As regards returns from the Services, information was received from the War Office that an entrance examination for commissions in the Royal Army Medical Corps had been held. The War Office was thereupon asked if it would furnish a return in regard to candidates similar to that supplied prior to the war. This has been done; but as there were only four candidates for 15 vacancies, all of whom were successful, the result is merely summarised. The Royal Navy and the Indian Medical Service have not resumed the pre-war system of direct entry by competitive examination.

Dental Education and Examination Committee.

This report was received, and its recommendations adopted, on motions by Sir James Hodsdon (chairman of the Committee). Most of the business reported related to colonial and foreign applications for

registration. Mr. J. Howard Mummery was, by the Council's adoption of the recommendation relating to inspection of dental examinations, appointed as inspector under the Committee.

Public Health Committee.

This report was presented on Saturday, June 2nd, by Sir John Moore (chairman of the Committee). The report was introduced and dealt with in two parts.

1. The first part of the report related to annual returns and interpretation of rules. With regard to diplomas in public health, during the year 1922 369 candidates were examined for the first examination, of whom 271, or 73.44 per cent., passed, and 98, or 26.56 per cent., were rejected. For the second and final examination 391 candidates presented themselves, of whom 277, or 70.84 per cent., were successful, and 114, or 29.16 per cent., failed. During the year the English Conjoint Board granted exemptions to six persons. In two of these cases "candidates were allowed to complete the curriculum in six months by taking out the laboratory course, M.O.H. work, and practical sanitary course in the medical school concurrently, plague duty in India being allowed by the Committee (of the Conjoint Board) to count for the remaining three of the nine months' course of study." The Committee recommended that a communication be addressed to the Conjoint Board inquiring as to the extent and nature of these exemptions, in order to ascertain whether these are in accordance with the Council's rules. Eighteen bodies granted no exemptions during the year.

This part of the report was received without discussion.

2. The second part of the report related to a communication addressed to the President of the Council and signed by the President of the Royal College of Physicians and the President of the Royal College of Surgeons, brought before the Executive Committee of the Council on Feb. 26th, 1923, and by them referred to the Public Health Committee. The letter referred to the resolutions and rules of the Council in respect of the diplomas in sanitary science, public health, or State medicine. In both colleges considerable comment was made concerning the hardship imposed by the new regulations on medical practitioners generally and on colonial and Indian medical officers and officers in the R.A.M.C. particularly. The Committee, in commenting upon the letter, stated (*inter alia*) as follows:—

The whole design of the new Rules is to provide for a diploma, special in character and high in standard, for those who intend to take up an official public health career in the civil communities of Great Britain and Ireland. . . .

The Committee are of opinion that as holders of the Diploma are deemed qualified to take high public positions in Great Britain and Ireland, such instruction taken in any other part of the Empire would not necessarily furnish the candidate with the requisite knowledge for dealing with the problems which arise here.

. . . the functions of a sanitary staff officer of the Royal Army Medical Corps are quite different from those of a civil medical officer of health. Officers in the Navy and Army have to deal with selected lives, under sanitary conditions, at home or abroad, which are very different from those of civil life.

. . . The Committee consider it important that candidates, before entering for the final examination for the diploma, should have the opportunity of gaining clinical experience for at least one year after qualification as medical practitioners.

Various amendments were moved by Sir Humphry Rolleston on behalf of the Royal College of Physicians, but these were not carried. There was some discussion, after which the second part of the Public Health Committee's report (in which the Committee found themselves unable to recommend the Council to agree to suggestions made in the letter from the Presidents of the Royal Colleges) was agreed to by the Council.

Appointment of Registrar.

Mr. Norman C. King was reappointed Registrar.

THE LANCET.

LONDON: SATURDAY, JUNE 9, 1923.

THE TREVETHIN REPORT.

"To consider and report upon the best medical measures for preventing venereal disease in the civil community, having regard to administrative practicability, including cost."

A LITTLE more than a year ago, as a result of correspondence between Sir ALFRED MOND, then Minister of Health, and Lord DAWSON, chairman of the Medical Consultative Committee of the Ministry of Health, the proposal took shape to set up a medical tribunal whose conclusions and recommendations could be submitted to public opinion in reference to the control of venereal disease. The two societies engaged in the solution of these problems—the Medical Society for the Study of Venereal Diseases had not then been formed—concurred in this view, and Sir ALFRED MOND approved the selection by the heads of the medical profession of such a Committee of Inquiry. A committee of 16 expert representatives resulted, which sat with Lord TREVETHIN as chairman, and Mr. T. J. C. TOMLIN, K.C., as vice-chairman, and has now brought in the unanimous report which appears substantially in full in another part of our present issue. Their conclusions and recommendations are, as was so ardently desired, unanimous.

By the terms of their reference the Committee were limited to the consideration of medical measures, but to avoid misunderstanding they record early in the report their conviction that medical measures alone can never operate as an absolute preventive of venereal disease, and that the success of these measures must depend largely upon the coöperation of the community, a coöperation which can only be attained if full knowledge of the nature of the problems to be faced becomes common property. Dealing first with measures for prevention, the report considers these under the two headings of Disinfection by the person himself ("self-disinfection") and Disinfection at the hands of a trained person ("skilled disinfection"). At the outset it is agreed that the prospects of success are less in the case of a woman than in the case of a man. The Committee find no reason to doubt that an intelligent man, furnished with reasonable instructions, could in favourable conditions effectively disinfect himself; nevertheless little direct evidence was presented as to the advisability of introducing public facilities in the civil community. Where satisfactory results were recorded, the Committee found difficulty in determining how far these results were due to the prophylactic methods employed or were influenced by other factors. They do not think that there is any justification for putting obstacles in the way of individuals who desire to procure the necessary disinfectants, although they regard the commercial advertisement of ad hoc disinfectants as a thing to be prohibited. The definite suggestion is put forward that the law should be altered so as to permit properly qualified chemists to sell ad hoc disinfectants, provided such disinfectants are sold in a form and with instructions for use approved by some competent authority, such as the Medical Research Council. From a medical

point of view instruction in self-disinfection given to male persons attending clinics would afford a useful means of educating the community, but the Committee felt that money—known to be limited in amount—spent on a general system of providing facilities for self-disinfection would be less profitably spent than on other measures.

A high testimonial is given in the report to existing venereal disease clinics, which in the Committee's opinion should be encouraged, extended, and improved, for the average medical practitioner is not yet equipped to deal competently with all the cases that come before him. The tendency of patients to cease treatment before completion is not regarded as so serious a difficulty as has been supposed, for by no means all persons who discontinue attendance before completing treatment are infectious, the standard of cure suggested by the Ministry of Health being very high. Notification in itself is regarded as of little assistance unless it is to be supported by a system of compulsory treatment, and, if necessary, detention, but the Committee cannot get away from the hardship of imposing penalties on those who come for treatment while those who make no effort to seek it go scot-free. Pending the general acceptance by the medical profession of a standard of non-infectivity or cure, it would be difficult to apply any system involving notification and compulsory treatment. Improvement of the present clinic system is suggested in the direction of providing more suitable accommodation, greater choice of hours, more hospital beds, hostels for women under treatment, and homes for children. At the same time the report is unanimous that patients who can afford to do so should pay for their treatment at the clinics. Great stress is laid on giving personal instruction and warning to patients attending clinics, a duty which must always devolve mainly on the doctors, but which might be supplemented by trained social workers. In rural areas or districts where clinics are not easily available, the report recommends the setting up of a panel of medical practitioners through whom treatment could be provided. The attention of the authorities concerned is directed towards infective immigrants and seamen, and to the imperfect control of the considerable number of mental defectives who are suffering from venereal disease. A final plea is made for a wide liberty in administration so that local authorities which can make out a case for some special measure should be allowed to carry out their proposal, in order to build up a body of experience that may determine future policy. The tone of the whole report is not unreasonably hopeful, for there is evidence that venereal disease is already substantially declining, and the Committee realise that certain modifications in their views may be called for in the light of important new knowledge of which there are indications.

RICKETS IN VIENNA.

THE main results of the expedition sent by the Lister Institute and the Medical Research Council to Vienna in 1919 under Dr. HARRIETTE CHICK to study deficiency diseases in that unhappy country have been already published in THE LANCET.¹ It was there shown by observations of exceptional precision that the incidence of rickets in children could be determined by dietetic factors, and that fat-soluble vitamins, such as are present in cod-liver oil, and sunlight play important parts. The Medical

¹ THE LANCET, 1921, ii., 842; 1922, ii., 7.

Research Council has now published the full account of these investigations.² It is admirably presented, and deserves the close and critical examination which the ample details render possible. With the general discussions, it provides for human rickets the complement of the volume on experimental rickets by Prof. KORENCHESKY, issued by the Council last year.³

After a general introduction and summary of the recent literature, an account is given, illustrated with many photographs and charts, of the fundamental observations made in Prof. v. PIRQUET's Kinderklinik by Dr. CHICK, Dr. E. J. DALYELL, Dr. HELEN MACKAY, Miss E. M. HUME, Miss HENDERSON SMITH, and Dr. HANS WIMBERGER. It is shown beyond cavil that rickets may be prevented and cured by cod-liver oil, that a diet which in winter will permit the development of rickets may be in summer, with the help of sunlight, adequate to stave it off, and that the disease may be quickly cured by sunlight or the mercury-vapour lamp; they also emphasise the fact, not yet perhaps adequately appreciated, that the chief incidence of rickets is in the first six months of life. The diagnosis of a disease of gradual onset like rickets is in mild and incipient cases bound to be a matter of difficulty, and, to some extent, of differences of opinion. There was a wise agreement to adopt the uniform criterion of X ray appearances, and Dr. WIMBERGER gives a most valuable account of the radiographic changes in rickets and its differential diagnosis by this means. The illustrations are particularly good; being actual prints, not process reproductions, the fine detail can be studied to advantage with a lens, and speaks well for the technical skill with which the photographs were got from rather difficult subjects. Anyone wanting a summary of the appearances of the bones at different stages of the disease would do well closely to examine the frontispiece. Drs. ZARFL, DALYELL, and MACKAY follow with an account of the work done, on a larger scale but in less detail, at the Landes-Zentral-Kinderheim, where mothers as well as infants are received. The results are in general accord with the better controlled data from the Kinderklinik, with the interesting addition that in winter rickets frequently developed in children who were entirely breast-fed, and that this was not prevented by the addition of 12 oz. of butter a week to the mother's diet. Drs. DALYELL and MACKAY discuss also the importance of the various clinical symptoms, and in a short but important section point out that a systematic comparison of the histology of the rib-junctions after death with the signs observable during life shows that a fair number of infants passed as non-rachitic in the wards may really be in an early stage of the disease. In conjunction with the clinical work, Miss HUME made a long series of experiments on rats with different milks. Vienna milk always had a low content in vitamin A, as judged by its capacity to promote growth in rats, and it certainly had little power to prevent rickets in children. Attempts to secure a milk of higher vitamin value by varying the feeding of the cows were not successful, and the value of such milk in the prophylaxis of rickets is an important question which needs an answer. With human milks, observations were difficult, and the results rather inconclusive as regards the correlation between the mothers' milks and the rachitic categories of the children; but clear evidence was obtained that the administration of cod-liver oil to the mother might greatly increase the value of her milk, the effect depending apparently on the nutri-

tional condition of the mother to start with. The paper by the same author showing that ultra-violet light does not replace but only economises vitamin A in the growth of rats is reprinted from THE LANCET;⁴ and the volume ends with a note by Drs. CHICK and DALYELL pointing out that their previous results on the value of cod-liver oil in hunger osteomalacia cannot be explained by the more recent realisation of the influence of sunlight on the growth of bone.

Prof. v. PIRQUET blesses the whole enterprise in a graceful preface. He confesses very frankly that when the inquiry started he did not think much good would come of the attempt to show that rickets was not an infection; he is now persuaded that it is a disease of nutrition and that deficiency of fat-soluble vitamin is an essential cause. To convert the author of the *System der Ernährung* is something. However, *nullius in verba magistri*, and it is possible that everyone will not be convinced by what seem exceptionally clear results obtained in a difficult field. Clinical observation of the order of precision demanded in animal experiments is not easy; it is an individual and temperamental business, and considerations other than the progress of knowledge are constantly cropping up and proving paramount. But in the present instance it has been achieved, and those who have done the work are the first to say that this would have been impossible but for the existence of the splendidly equipped and organised institution over which Prof. PIRQUET presides, and the generous hospitality with which its facilities were put at their disposal. The prime business of the Kinderklinik is not the treatment of the sick poor, which is provided for elsewhere, but to serve the University ideal of teaching and investigation, and it is possible to devote beds over long periods to the use of the children, hardly perhaps ill in any ordinary sense, necessary for the solution of a problem. The need for similar beds in this country is very urgent, and this expression must not be confused with general advocacy of hospital experimentation. Wards full of heterogeneous collections of sick persons fulfil well the primary charitable and the secondary teaching obligations of our great hospitals. They cannot be diverted from their original purpose. But this striking example of what can be done in post-war Austria with beds primarily set apart for investigation may do something to bring about a realisation of the absolute necessity of adding such accommodation to some of our larger teaching hospitals; the number of beds needed is really very few, and the cases to be studied in them would be selected with the double object of giving individual benefit and of strengthening medical resources. Medical research misses its objective by so much as it does not investigate sick people. Laboratories go on increasing without any provision of that to which they are the complement, and laboratory work dominates the field largely because of the difficulties of undertaking serious systematic clinical inquiries in the absence of beds which can be devoted unreservedly to the purpose.

THE CONSTANTINOPLE BOARD OF HEALTH: A VANISHED LANDMARK.

THIS is an era of vanishing landmarks. In the upheaval of the past nine years dynasties have disappeared and empires have crumbled to dust, and in the welter of confusion many a lesser institution has died a silent and almost unnoticed death. Some had served their purpose, and left no tasks unfinished for

² Medical Research Council, Special Report Series, 1923, No. 77.

³ THE LANCET, 1922, ii., 1340.

⁴ THE LANCET, 1922, ii., 1318.

others to complete. Some, on the other hand, were doing work of real value to the world—work which must be continued if the welfare of mankind is not to suffer. To this latter group belonged the Constantinople Board of Health. Created in 1838, that body had for over three-quarters of a century endeavoured to carry out the highly important mandate with which it had been charged by the Powers—that of safeguarding Europe from the incursions of infectious disease from the East through the vast lands that once formed the Turkish Empire. We publish to-day the last section of an historical survey of the work of the Board, from the pen of Dr. F. G. CLEWOW, C.M.G., who was British delegate to the Board since 1900. From this a clear idea may be gathered of the Board's origin and early days, of the wide and complex character of its mandate, of the methods by which it endeavoured to meet its international responsibilities, of its financial resources and of the problems that, as a result of the Board's extinction, must be solved by some other means.

Like many another institution of value to the world, it was in the heyday of its activities and on the eve of making large and costly improvements in its widely scattered establishments, when the thunderbolt of 1914 fell. For reasons explained in Dr. CLEWOW's articles, the financial position of the Board had for some years before the war been a curiously anomalous one. On the one hand, the lazarets and other establishments directed by the Board were in crying need of repair and reorganisation; on the other, the Board possessed a large reserve fund, resulting from an excessive sanitary tariff; yet it was unable to spend any of the reserve in carrying out those repairs, since, under successive international conventions, such expenditure was to be borne by the Turkish Government. In this, as in so many other matters, the latter evaded its obligations, and hence arose the anomalous state of affairs just referred to. A way out of the impasse had, however, been found, by a fresh agreement, under which, as an exceptional measure, over three-quarters of a million sterling was to be spent in repairing the existing lazarets and creating new ones. That that sum was not excessive will be realised when it is recalled that the coasts and frontiers to be defended stretched from the Turco-Persian frontier on the east to the Albanian shores of the Adriatic on the west, and from the Black Sea coasts on the north to the Red Sea shores of Arabia on the south, and that, apart from these coastal defences, the Board was charged with the sanitary supervision of the orthodox Moslem pilgrimage to Mecca and Medina, of the Shiah pilgrimage and carriage of dead bodies to the holy cities of Iraq, and of the newly-opened Hedjaz Railway. In the last nine years before the war complete inspections of all the existing sanitary establishments in these great areas had been carried out; detailed plans and estimates for their reorganisation and the creation of new ones had been prepared; the consent and ratification of all the Powers concerned had been obtained, and, had peace not been rudely broken, the eastern sanitary defences of Europe would in a few years have been put into a more satisfactory and efficient state than they had ever been in before. But the dispositions of God and the propositions of man once again disagreed, and with the outbreak of war these promising schemes were shattered. In the autumn of 1914 Turkey, by a unilateral and arbitrary declaration, put an end to the Capitulations, and soon after eliminated the foreign element from the Board of Health, as being a corollary of the Capitulations. Then Turkey came into the war herself, on what she

fully believed would prove to be the winning side. But her dazzling dreams of a future of conquest, wealth, and independence were rudely upset by events, and four years later she emerged from the war shorn of a vast proportion of her great territories. And with these territorial changes the sanitary problems of the Near East have also changed. The coastal and frontier sanitary defences of Mesopotamia and Iraq, of Arabia, of Syria and Palestine, of Tripoli and Cyrenaica, of the Aegean islands, and of much of the Black Sea, Aegean, and all the Adriatic coasts of European Turkey; the sanitary supervision of the orthodox and Shiah pilgrimages; and that of the Hedjaz Railway have all passed to the authorities of countries other than Turkey, and will no longer be directed by an international body sitting in Constantinople.

The extinction of the Constantinople Board of Health has been formally recognised by the Powers, and the author aptly speaks of his historical survey as an "obituary notice." So far as the sanitary barriers in what remains of the Turkish Empire are involved, the interest of Europe has been reduced almost in the same proportion as that empire's territories have been reduced by the war. But the remnant has a very real and very vital interest for the health of other European countries. The "Straits"—i.e., the Bosphorus, Sea of Marmora, and Dardanelles—are still in Turkish hands, and they are one of the two great waterways by which disease may at any time be brought into Europe from infected, insanitary, and backward countries of Asia. The other is the Suez Canal. The sanitary defences of the Canal are provided for in great detail in the International Sanitary Conventions, and are entrusted to an international body sitting in Alexandria. But under existing conditions those of the even more dangerous Straits are under no international supervision. The necessity of reintroducing some such supervision, in however attenuated a form, is fully realised by the two great international health bodies of Geneva and Paris, and it has been prominently put forward in the Peace Conference at Lausanne, at which Dr. CLEWOW was the British expert delegate for questions of this character. The daily press has already made it known that a compromise has been reached, under which, for a period of years at least, the sanitary defences of Turkey will be under some form of limited international supervision; but we must wait some time longer before the details of the agreement are divulged. That can only be when the terms of the final Peace Treaty with Turkey are made public, and there is reason to hope that the interval of waiting will not now be greatly prolonged.

ROYAL INSTITUTION.—Sir William Bragg has been elected Fullerian Professor of Chemistry and Director of the Davy Faraday Research Laboratory in succession to the late Sir James Dewar.

The Friday evening discourse on June 15th will be delivered at 9 P.M. by Sir Ernest Rutherford, F.R.S., on the Life History of an Alpha Particle from Radium.

HORSHAM HOSPITAL.—On June 1st Lord Leconfield, as the Lord-Lieutenant of Sussex, opened a new hospital at Horsham. The hospital has been erected by voluntary subscriptions to meet the increased needs of the town and district as a war memorial. The cost has been £15,000, three parts of which have already been subscribed. The new hospital takes the place of the original institution erected in 1892 and has 12 beds in each of the two wards, and an emergency ward with six beds, besides accommodation for nurses and staff. It is hoped that the sale of the old building will liquidate the debt on the new institution. A contributory scheme among the working-class population is in operation.

Annotations.

"Ne quid nimis."

THE BIRTHDAY HONOURS.

ON the occasion of the King's fifty-eighth birthday the names of Dr. Hector William Gavin Mackenzie, Senior Censor of the Royal College of Physicians of London, and Prof. William John Ritchie Simpson, C.M.G., a member of the Colonial Advisory Medical and Sanitary Committee, appear in the list of honours as Knights Bachelor, while Major-General Owen Edward Pennefather Lloyd, V.C., C.B., retired pay, Colonel Commandant, R.A.M.C., is promoted to K.C.B. In the same Order Surgeon Rear-Admiral Joseph Chambers, C.M.G., becomes a C.B., as does also Colonel Walter Holland Ogilvie, C.M.G., I.M.S., Assistant Director of Medical Services, Presidency of Assam District, India. Lieut.-Colonel Asher Leventon, I.M.S., Superintendent of the Campbell Medical School and Hospital, Bengal; Lieut.-Colonel Thomas Hunter, I.M.S., Civil Surgeon, Lucknow, United Provinces; and Lieut.-Colonel Robert McCarrison, I.M.S., have been awarded the C.I.E. In the Royal Victorian Order Mr. Henry Linnington Martyn, F.R.C.S. Eng., and Mr. Francis Jeune Willans, M.R.C.S. Eng., become Members of the Fourth Class, and in the Order of the British Empire Major and Brevet Lieut.-Colonel Ralph Bignell Ainsworth, D.S.O., R.A.M.C.; Lieut.-Colonel Irvine Davys, I.M.S., Flight-Lieut. Christopher Thomas O'Neill, Royal Air Force, and Dr. Benjamin William Quartey-Papafio, Member of the Legislative Council of the Gold Coast Colony, formerly Assistant Colonial Surgeon, are made Officers, and Dr. (Miss) Agnes Henderson, Central Provinces, and Captain Antonelli Francisco Bartholomeu Saldanha, I.M.S., Members of the Order. Mr. Oguntola Sapara, L.R.C.P. Edin., medical officer, Nigeria, has been made a Companion of the Imperial Service Order. The list also includes the names of Mrs. Lilian Agness Starr, matron in charge of the C.M.S. Mission Hospital, Peshawar, North-West Frontier Province, who has been given a bar to the Kaisar-i-Hind Medal, and Miss W. J. Meiklejohn, nursing superintendent at the General Hospital, Rangoon, who receives the medal, and Miss Winifred Mary Aldridge, R.R.C., senior nursing sister, Queen Alexandra's Military Nursing Service for India; Mrs. Rose Lilian Vincent, M.B.E., who become Officers of the Order of the British Empire, and Mr. Claude R. Grice, Personal Assistant to the Director of Health Services, Iraq, and Alice Mary McClure, acting matron of the Mosul Civil Hospital, Iraq, who become Members of the Order. We offer our hearty congratulations to all who have thus been honoured.

THE WORKMEN'S COMPENSATION BILL.

SOME weeks ago we commented upon the judicial incrustations which have been allowed to restrict the award of workmen's compensation where the "accident" is of the nature of disease. The Government's new Workmen's Compensation Bill does something to widen the basis of awards. It proposes *inter alia* that accidents resulting in the death or serious and permanent disablement of a workman shall be deemed to arise "out of and in the course of" his employment, notwithstanding that he acted in contravention of any statutory or other regulation or of any orders given by his employer or without instructions from his employer, if such act was done by the workman for the purpose of and in connexion with his employer's trade or business. Medical practitioners will be interested in two other provisions included in the Bill. One is the proposal that in every factory (unless there is already a proper ambulance room with arrangements for the immediate treatment of injuries) there shall be a first-aid box or cupboard under the charge of a responsible person

who shall always be readily available during working hours; where there are more than 150 persons employed, there is to be an extra box or cupboard for every additional 150 employees. The other proposal of interest concerns medical referees. Under the existing law, when employer and workman cannot agree as to the workman's condition or fitness for employment, the registrar of a county court may refer the matter to a medical referee on payment of a fee by the applicant. It is proposed to do away with the fee and to allow a reference on the application of either side, subject to appeal to the judge. Reference to a medical referee at present also takes place (under section 8 (1) (f) of the 1906 Act) if employer or workman is aggrieved by the action of a certifying or other surgeon in giving or refusing a certificate of disablement or in suspending or refusing to suspend a man from work. The Bill proposes that the medical referee when deciding the matter shall also give a certificate (which shall be conclusive) as to the condition of the man at the time when he examines him.

This Government Bill, which received its second reading on May 30th, is to be distinguished from the more comprehensive but politically less practicable Workmen's Compensation Bill introduced by Mr. J. H. Thomas on behalf of the Labour party. The main difference between the two is that the latter is a complete legislative embodiment of the recommendations of the Holman Gregory Committee, while the former is not. The Government Bill, for example, ignores the Committee's recommendation of compulsory insurance and of the supervision by the State of rates of premium, though it does include the Committee's suggestions as to the waiting period and as to the extension of the Acts to shore fishermen, London taxicab-drivers, golf-caddies, and so on. The Bill is not the complete consolidation of the law for which we had hoped. Perhaps the law is not yet stable enough. We seem still to be experimenting with a novel category of legal procedure in which, at any rate from the employer's point of view, liability is not in any way based upon fault. We observe that in treatises such as the useful and well-documented survey of Accident Insurance by Mr. Baker Welford, which has just reached us,¹ learned authors are cautiously confining themselves to the search for fixed principles rather than to the textual interpretation of statutes which as yet resist crystallisation.

THE ODOUR OF THE URINE.

SINCE 1919 Dr. Emilio Pittarelli has been engaged in investigations with the object of determining to what substances the odour of the urine is due. Most text-books of physiology or clinical chemistry have hitherto been very vague on this matter. Nessler's reagent, which gives a red-brown precipitate as a test for ammonia, has been found also to give a greenish-yellow precipitate with normal urine previously purified by a mixture of corrosive sublimate and bicarbonate of soda. When such urine is distilled an unknown, or imperfectly known, substance begins to volatilise at 60–70° C., but completely leaves the urine only at the boiling point. The distillation must be made in an acid medium to prevent preformed ammonia and that formed during boiling passing into the distillate. Phosphoric acid is preferable to obviate the impurities met with in hydrochloric and sulphuric acids. The distillation is complete when it amounts to at least one-quarter of the urine. The chief characteristics of the distillate are—a limpid colourless fluid of intense urinous odour, neutral to all reagents. It is not precipitated by alkalis or acids nor with the bicarbonate and sublimate mixture; it does not react with Fehling, nor give the diazo-reaction in neutral or acid media; no apparent change takes place with salts of silver, cadmium, iron, lead, mercury, or zinc. With Nessler's

¹ The Law Relating to Accident Insurance. By A. W. Baker Welford, Barrister-at-Law. London: Butterworth. 1923. Pp. 652 and 54. 35s.

reagent it gives the greenish-yellow precipitate, similar to that given with many other substances, such as alkaloids, amides, all amines, organic ammonias, aldehyde, and methylene derivatives. Nessler's reagent is very sensitive to ketones and particularly to acetone, but the presence of the latter may be excluded as being the factor in the precipitate, for it has no odour, and its precipitate is milky-white instead of greenish-yellow; moreover, the other reactions for acetone, such as acetol, iodoform, and nitroprussiate, do not occur. Dr. Pittarelli¹ concludes from the result of his experiments that there is a close relation between the odour of the urine, the distillate, and the precipitate, and that there is a volatile body in normal urine resembling ketone, but different from ordinary acetone, precipitated by Nessler's test, and that it is to this substance that the characteristic odour of the urine is due.

RETIREMENT OF SURGEON-GENERAL SIR GERALD GIFFARD.

AFTER nearly 35 years' service, Sir Gerald Giffard, Surgeon-General with the Government of Madras, has arrived home on leave, preparatory to retirement. General Giffard's name will always be associated with the reconstruction of the Government Maternity Hospital, and the building of the School of Midwifery in Madras, which last is known as the "Giffard School." During his strenuous years in the Maternity Hospital and also during his tenure of office as head of the medical department in Madras, he has been the keen champion of the nursing profession. During his term of office the Madras Nurses' Association was formed; the members of the Association recently entertained General Giffard at an "At Home," held in the Y.W.C.A. grounds. In his reply to a tribute of praise paid to him by Mrs. Symons, President of the Association, Surgeon-General Giffard said that he had welcomed the formation of the Association, but that much yet remained to be done for the nurses. The Madras Government had recently passed an order that only qualified nurses should be employed in State hospitals; this meant that unqualified nurses would no longer be able to rise to the higher ranks of the nursing profession. The Government was also arranging for pension and provident funds for their nurses, and the papers connected with this subject were now before the Secretary of State for India. We congratulate Surgeon-General Giffard on the valuable work for maternal welfare which he has been able to initiate, the results of which are as yet only dimly seen.

BOWEL DISEASE AMONG MINERS IN THE TROPICS.

WE recently printed² an abstract of the research programme of the School of Tropical Medicine at Calcutta, from the pen of Major Robert Knowles, I.M.S., professor of protozoology in the school and its secretary during the critical early days of its existence. The annual report for the year 1922 now reaches us, containing additional information on the work of the school and of the Carmichael Hospital for Tropical Diseases, and, amongst other things, an account of the inquiry into the causes and prevalence of bowel diseases in colliery districts—an inquiry which was financed by the Indian Mining Association. The investigation was entrusted to Captain G. C. Maitra, I.M.S., who forthwith started to find out the number of bacillary dysentery carriers in hospital patients. No success attended his efforts during the hot weather, but with the advent of the cold season the proportion of faecal specimens giving an alkaline, or neutral, reaction became larger, but even then no dysentery organisms were isolated from faeculent specimens. The cultural results of blood and mucus

stools were not satisfactory; 15 samples were examined and typical organisms, once a Shiga bacillus and once a Flexner bacillus, were isolated from two only. Both these were from early cases of the disease which had developed locally. Success in recovering dysentery organisms depends mostly upon the freshness of the sample of stool, even in early cases of the disease. Sixty blood samples were examined for agglutinins by the macroscopic method, and out of these 17 only gave a higher titre than 1:40, and mostly with the Flexner organism. Ascitic fluid was also examined for antibodies in eight cases, and it was found that this fluid inhibited the growth of the dysentery bacillus; the reason for this inhibition does not seem to be sufficiently clear. The field work was conducted at Dhanbad, when 1200 samples of faeces, 11 samples of water, and three batches of house-flies were examined, and it was found that the majority of cases of dysentery among the miners are bacillary in origin. The general conclusion is that monsoon prevalence of bowel diseases in the coal-fields is to be attributed to polluted water-supply, while there is also a probable correlation between bowel diseases in miners and ankylostomiasis.

THE FUTURE OF MEDICAL BENEFIT.

TIME is running out in regard to the panel settlement, for the present compromise lasts only another six months. Panel committees have been fully instructed in the views and temper of their constituents, and, as we go to press, their representatives are meeting at Westminster to decide on a course of action. At this juncture it may be of interest to set down the position of medical benefit as seen by the *National Insurance Gazette*, which sums up thus in a recent leading article:—

"A good number of doctors are giving a thoroughly good service; others are overpaid; still others are giving nothing better than the old club practice, and the small residue—well, no respectable 'club' would have contracted with them. That is the problem of the panel service, as we see it. We wish we saw the solution as clearly."

No doubt the panel system as it stands does allow a good deal of latitude to the so-called black sheep for whom the only effective and speedy remedy is disciplinary action by the medical profession itself. And this view is spreading, for a prominent official of a large friendly society is reported as saying:—

"In my opinion the doctors themselves, through the British Medical Association, could do far more to improve the service than it is possible either for the Ministry of Health or the insurance committees to do. By their own Council they could bring to book and deal effectively with any doctor who failed in his duty to his panel patients."

There would appear to be appropriate administrative machinery in existence for this purpose. In conjunction with the Insurance Acts Committee the local panel and medical committees might be empowered to deal with irregularities which presumably come to their knowledge at a very early stage, while the Ministry of Health might enlist the services of panel committees to a much greater extent than is done at present. In this way the "thoroughly good service" which is the mainstay of medical benefit would not be overshadowed—quite unjustly and out of all proportion—by the worser service.

MEGALO-URETER.

At a recent meeting of the American Association of Genito-Urinary Surgeons, Dr. John R. Caulk,¹ of St. Louis, remarked that anomalies of the ureter have ceased to be autopsy curiosities and have acquired a very important clinical position since the development of scientific urology. His paper, which includes the report of a personal case, deals with variations in the calibre of the ureter which hold an intermediate position between irregularities in number, which are the commonest, and aberrations of insertion, which are the rarest. The most frequent type of change in

¹ La Riforma Medica, xxxix., May 14th, 1923.

² THE LANCET, April 7th, p. 728.

¹ Journal of Urology, April, 1923.

ureteral calibre is enlargement. Abnormal dilatations are fairly frequent and are usually attributed to congenital strictures or valves, most of which are situated near the bladder and in most instances are associated with a marked enlargement of the ureters. In a few cases the stricture area is very extensive, the ureter being replaced by a fibrous cord. The causes of ureteral enlargement are to be found in (1) obstruction, (2) primary alterations in the ureteral wall itself, and (3) a combination of these two causes. Whatever the cause of the obstruction may be, the effects upon the ureter are the same, consisting almost always in the production of a thin-walled tortuous tube varying in calibre from that of a pencil to that of the small intestine. An admirable illustration of a dilated and tortuous ureter appears in Sir John Bland-Sutton's lecture at the front of our present issue. Dr. Caulk notes that the wall of these dilated ureters often shows valve-like folds. Primary enlargement of the ureteral wall may be congenital or acquired. Apart from tuberculosis, changes in the ureteral wall due to inflammation are rarely sufficient to cause considerable changes of calibre, the most constant change being irregularities of outline. In cases hitherto recorded dilatation of the ureter has usually been associated with dilatation of the renal pelvis, ranging from moderate distension to enormous sacs completely destroying the parenchyma. Dr. Caulk now reports a case in a woman, aged 32, which was remarkable for the fact that enormously dilated ureters were not accompanied by a corresponding dilatation of the renal pelvis, ureteral obstruction, or proportionate disturbance of renal function. Marked improvement followed an extensive cystoscopic incision of the uretero-vesical valve. Dr. Caulk has given the name of megalo-ureter to the condition present in his case, as he is inclined to believe that the ureteral enlargement represents a defect in the ureteral wall of a congenital nature, comparable to the condition in the large bowel, especially the sigmoid, which is known as Hirschsprung's disease or megacolon.

NEBULOUS CONCEPTIONS OF DYSPEPSIA.

THAT comfortable sense of complete and well-rounded-off knowledge with which the medical student leaves his hospital is seldom retained for long, and the vagaries of the gastro-intestinal tract alone soon leave most practitioners convinced of the modesty of their diagnostic attainments. No one who has visited the Bispebjerg Hospital in Copenhagen can have formed anything but a high opinion of the efficiency of its staff, and yet, as far as the diagnosis of dyspepsia is concerned, its records show that it is the exception rather than the rule for the symptom of dyspepsia to be tracked down to some definite morbid state. According to Dr. E. Meulengracht,¹ the Department B of this hospital treated between 300 and 400 cases of dyspepsia in 1921, and in addition to the usual functional tests, X ray examinations were carried out in most of these cases. Yet, in more than half of them nothing was found to account for the dyspepsia, and in from 60 to 70 per cent. there were no definite signs to confirm the patients' symptoms. And in the remaining 30 to 40 per cent. the signs found were often not sufficiently distinctive and pathognomonic to be of much diagnostic importance. They were, in fact, so lacking in distinctive instructiveness that they left a large choice of diagnoses suitable for the tastes of various physicians. Dr. Meulengracht would seem to have taken an almost whimsical interest in betraying the lack of accurate knowledge with which we are still afflicted in this matter. He has published the diagnoses made in 1920 by four communal hospitals in Copenhagen, all of which admitted cases of dyspepsia. The first hospital treated 161 such cases, 86 being given the label of "ulcer" and 21 that of "constipation." "Gastritis" figured in 16 cases and "colitis" in 10.

Only in 1 case had the non-committal diagnosis of "dyspepsia" been made. The second hospital had treated 124 cases, of which as many as 21 were given this non-committal label. There were only 7 cases of "constipation," 62 of "ulcer," and 7 of "gastritis." The third hospital had 282 cases of dyspepsia, and while the second hospital had only 6 cases of "colitis," the third hospital had 72. It had as many as 48 cases of "gastritis." The fourth hospital had 183 cases of dyspepsia, and in as many as 86 the label given was "dyspepsia." The label of "gastritis" was given to only 2 cases, and of "ulcer" to only 37. The fact that in one hospital 54 per cent. of the cases of dyspepsia were labelled as "ulcer," while only 20 per cent. were given this label in another hospital, suggests that at present the labelling of dyspeptic patients is a random and haphazard process which even in an up-to-date hospital is at the mercy of transient fashions, the proclivities and fancies of the individual physician. The labels—"gastric atony," "ptosis," "gastritis," "achylia gastrica," "ulcer," "enteritis," "colitis," "constipation," and many others seem still to be distributed with the impartiality of ignorance.

PUBLIC HEALTH INTERCHANGE.

THE Health Organisation of the League of Nations aims at establishing closer relations between the health services of different countries and at bringing about mutual understanding between national health administrations. In October, 1922, with the aid of a generous grant from the Rockefeller Foundation, amounting to \$60,000 annually for three years, the Health Committee started a system called "International interchange of public health personnel," although the title is misleading in so far as it implies that individual officials actually change places. In practice the system, as it has been tried hitherto, is an arrangement by which a number of selected medical officers of health, and other medical men holding appointments under a central or local public health authority, take part collectively in an arranged course of lectures, demonstrations, and practical work in a foreign country. The duration of the course is usually three months or less, the period being passed in one country or in two countries as may be arranged. We learn from a report presented by Sir G. S. Buchanan to the League's Health Committee at the session which began its sittings in Paris on May 26th, that four kinds of courses are contemplated or have been actually tried: (1) collective "general" courses dealing with public health arrangements as a whole and intended to be applicable chiefly to the senior members of the public health service who are concerned largely with administration; (2) collective "specialist" courses dealing with a particular public health subject such as tuberculosis or maternity and child welfare; (3) "specialist" courses for bacteriologists engaged in laboratory work on public health subjects; (4) individual arrangements for particular public health officers from distant countries who may desire to study public health work either from the general or special point of view.

The courses actually completed or at present in being are: (1) a "general" course of two months' duration from Oct. 9th to Dec. 17th, 1922, in Belgium and Italy; (2) a "general" course of three months' duration from Feb. 25th to May 20th, 1923, in Great Britain and Austria; (3) a "specialist" course now proceeding (from May 21st to June 12th) on methods of dealing with malaria in Italy. Arrangements have also been completed for the visits of public health bacteriologists to the laboratories of other countries than their own, and preparations are in progress for a "general" course in the United States of America. Altogether some 83 officers from 24 different countries have taken part. As a means of building up habits and traditions of co-operation and mutual help between the health officers and administrations of the countries concerned the system has much to commend it.

¹ Ugeskrift for Laeger, May 10th, 1923.

THE DISCIPLINARY FUNCTIONS OF THE GENERAL MEDICAL COUNCIL.

THE session of the General Medical Council which has just risen was largely occupied by the hearing of penal cases. Brief accounts of these cases are published in another column, and the nature of the charges and of the results merit a little consideration. In the first instance, there were 12 cases, affecting 13 individuals, but only two erasures followed the hearing of the charges, and in both these cases previous criminal convictions had been registered. Considering the size of the constituency and the various directions in which disciplinary action may have to be taken, the number of suggested infringements of the professional code is very small. Three of the cases dealt with irregularities in the issue of certificates, and although the names of none of the four persons concerned were erased, the offenders met with severe official reproof. This is not to be wondered at: the powers inherent in the medical certificate are so important and far-ranging that the State is right to expect from those who are privileged to grant these documents the fullest sense of responsibility and the maximum of accuracy. There were two cases of "covering," one of which was reported by the Dental Board, the other of which took notice of the relation between a general practitioner and an uncertified midwife. In both cases judgment was postponed in order to allow the practitioner to set in order his professional behaviour, and the leniency is reasonable when it is remembered what removal from the Register may mean. It will give the opportunity to the practitioners to consider what "covering" implies; the offence proposes either to defeat the law of the land, or to gain undue advantage over a professional colleague observing the proper restriction. Of two cases of advertising, in one the facts were not proved, and there is no offence, of which the Council has to take official cognisance, which requires more accurate scrutiny. The charge of advertisement is so easily made, but the responsibility for the undue publicity can so rarely be fixed. In many cases where there has been an easily comprehensible feeling that professional ethics have been ignored, the supposed offender has been entirely innocent of the mischief.

VOLUNTARY HOSPITALS AND THE KING'S FUND.

VOLUNTARY hospitals have shone so brightly during the past week that it is only the confirmed pessimist who can see therein the last flickers of an expiring system. The King and Queen have laid foundation-stones of new sections of University College Hospital which were, until the Rockefeller gift, quite beyond the reach of legitimate hope. St. Bartholomew's Hospital has begun an octocentenary celebration modestly designed to carry on the tradition for another 800 years. The British Hospitals Association has held its annual conference at Sheffield, and the brief extracts from some of the communications which appear at the end of this issue will serve to show the varied interest. A study of the daily press reveals the gratifying fact that hospital administration now interests a large public. At the annual meeting of the General Council of King Edward's Hospital Fund for London, held in the House of Lords on June 4th, the Prince of Wales, who presided, referred to the Combined Appeal on behalf of the voluntary hospitals as the principal business of the year. That appeal has been a success, and the reasons for this were given by the Prince. First of all, the cause was good, while the voluntary system makes an almost universal appeal to our sympathies; secondly, the appeal was well organised; and thirdly, the organisation had a good personnel. But, as the Prince pointed out, although the hospitals have been relieved from the crushing weight of the deficits of the years immediately following the war, the problem is not completely solved, for the hospitals have both to maintain their position and to improve it. Lord Revelstoke, the hon. treasurer, said that the total receipts

were £481,640, the total distribution amounting to £413,214. The sum reported as being available for the special distribution by the King's Fund was £365,000. This includes all gifts earmarked to hospitals co-operating in the appeal. It does not include the sum of £11,268 earmarked to the King's Fund and distributed in its ordinary distribution for 1922. Nor does it include £7536 earmarked to other central agencies, to hospitals for an agreed share of special events, and to non-co-operating hospitals; nor £4411, the value of equipment handed to hospitals and central societies; nor £25,000 reserved, at the desire of donors to that amount, for assisting the promotion of schemes for raising permanent income for hospitals by means of mass contributions. A list of the hospitals receiving awards under the Combined Appeal will appear in a future issue.

PASTEUR CELEBRATIONS AT PARIS.

THE "Fêtes du Centenaire de Pasteur" were inaugurated on May 24th by a brilliant evening reception held by the President of the Republic at the Palais de l'Elysée. Next morning delegates of foreign governments and representatives of foreign universities and learned societies found their way by the well-known entrance from the Rue Dutot to the Institut Pasteur. For those who were not familiar with the route admirable arrangements had been made by the municipal authorities whereby those invited found themselves at various "points de concentration." Here motor-buses were provided and visitors were transported in good time for the reception by Dr. E. Roux, director of the Institut. Roux, bearing the impress of long and patient suffering on his countenance and general aspect, stood out as the same courteous and sympathetic gentleman as ever. After the reception in the grand amphitheatre, the delegates and representatives arranged amongst themselves who should speak at the subsequent ceremonies, and formal proceedings gave place to pleasant intercourse and the reunion of old acquaintances. This occasion will be remembered by many as one of the most agreeable gatherings to which the whole elaborate programme gave rise, and to many brought back a vista of rich memories of the days of Pasteur and his colleagues at the Institut. A great album was provided for the signatures of the guests and to each was presented a special centenary medal of Pasteur and a print of the master himself. All this was but the prelude to the great "Cérémonie à la Sorbonne." At 3 p.m., in the grand amphitheatre, just before the grand ceremony, the unveiling of a plaque commemorative of the famous meeting at the Sorbonne of Lister and Pasteur took place, and a print reminiscent of this historic event was presented to each delegate. In the quadrangle were grouped delegates and representatives garbed, many of them, in their varied academic robes. Members of English and Scottish universities were more or less conspicuous in red gowns. When the ambassadors and other high dignitaries had taken their places Mr. Alexandre Millerand, President of the Republic, took the chair, and the band of the "Garde Républicaine" struck up "La Marseillaise." Mr. Léon Bérard, Minister of Public Instruction and Fine Arts, in stirring words recalled the works of Pasteur and paid a tribute to the beneficent influences and far-spread practical application of the results of his labours. Then came the turn of certain foreign delegates. Prof. W. H. Welch, of Johns Hopkins University, spoke first and other delegates read their addresses in turn. Sir Charles S. Sherrington, P.R.S., read the address from the Royal Society of London; others who followed presented their addresses. Mr. Strauss, the Minister of Hygiene, then spoke with eloquence. So ended a day in praise and in memory of Pasteur.

Saturday, May 26th, brought more ceremonies. At 10 a.m., this time at the "Ecole Normale Supérieure," Rue d'Ulm, a reception was held by Mr. Gustav Lanson, the director, and where the guests passed through the "Cabinet de Pasteur," and an hour later, at the

adjacent Rue des Feuillantines, a plaque commemorative of the house where Pasteur lived as a student was inaugurated by the President of the Municipal Council of Paris. This part of the programme had a double object, and was intended to commemorate two distinct periods in the life of Pasteur. Between 1838-43 he studied at the Ecole Normale; from 1843-49 he was administrator and director of scientific studies. The afternoon was partly taken up by a reception at the Hôtel de Ville. This particular Saturday was also notable for the celebration of the seventy-fifth anniversary of the foundation of the Société de Biologie, founded in 1849. By way of emphasising the importance and high standing of this well-known Society, the Societies of Biology of Bordeaux, Marseilles, Nancy, Petrograd, Lille, Barcelona, Strasbourg, Lyons, Buenos-Aires, Athens, Belgrade, Roumania, Portugal, Belgium, Denmark, Spain, Brazil, and Sweden sent delegates to pay tribute to the parent society in Paris. Shortly after 9 A.M., with the genial and eloquent Prof. Charles Richet in the chair, addresses were presented by these daughter societies. Prof. Richet first addressed the audience, which filled the rather sombre meeting-place, and then business started. Prof. A. Brascet, of Brussels, gave an admirable address entitled *Génération et Fécondation*, which merits special attention. By way of distraction, perhaps, members and delegates in the afternoon were invited to ascend to the third platform of the Eiffel Tower. The true Pasteurians were free on Sunday, but in their honour a gala evening at the Opera and Théâtre Français was provided. Those invited could choose opera or theatre. Not so the ardent biologists. Summoned again on Sunday for 9 A.M., they devoted their energies to the Physiological Action of Potassium and Calcium, on which subject Prof. H. Zwaardemaker gave a most interesting contribution. There was still no rest for the biologists. In the afternoon a "promenade-conférence" to the Marais, one of the most interesting quarters of old Paris, replete with ancient monuments, was undertaken by many of the foreign delegates.

Monday, the 28th, brought its due quota of visitations and attractions. At the Palais de Versailles, in the Galerie des Batailles, there was provided, just after midday, a sumptuous banquet for several hundred guests. The table of honour was arranged in the middle of the length of the enormously long room, and right and left 60 tables in all for the guests. The cover of the menu was well designed. It showed Pasteur with his well-known cap on his head, his face in profile, and suitable inscriptions below. The guests were conveyed back to Paris by special train. The biologists on Monday assembled to listen to a communication by Prof. Cantacuzène on the Problem of Immunity amongst the Invertebrates. On Tuesday, May 29th, Mr. Gaumont presented his film of the life of Pasteur at Place Clichy, and in the afternoon a garden party was held by the Institut de France at Chantilly. On May 30th those who were invited proceeded to Strasbourg, where, on May 31st, the inauguration of the Monument and Museum of Pasteur and the Exposition d'Hygiène were inaugurated.

WALLER MEMORIAL FUND.—It has been decided to create a research fund in connexion with the London (R.F.H.) School of Medicine for Women as a memorial to the late Prof. A. D. Waller and Mrs. Waller. Already £1100 have been promised. The hon. secretaries of the Fund are Prof. Winifred C. Cullis and Prof. J. Macdonald, and the hon. treasurer is Prof. J. Mellanby, of St. Thomas's Hospital, London, S.W.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—On June 2nd H.R.H. Princess Mary, Viscountess Lascelles, visited the school to distribute prizes and certificates for the past year's work. Princess Mary was received by Miss Aldrich-Blake, Dean of the school, who in the course of a short address recalled the fact that in the autumn of this year the school would reach its fiftieth anniversary. During the half-century over one thousand women had passed through the school, over seven hundred of them being now in the United Kingdom.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXIII.—THE TREATMENT OF CYSTITIS.

It is assumed in these notes that stricture, prostate, and nervous disease have been excluded, that the bladder has been explored for the presence of stone, growth, or other primary lesion, and the urinary tract for the possibility of a complicating pyelitis, prostatitis, or urethritis. Promiscuous medication in the presence of any of the above is not likely to be successful. These precautions having been taken, alternative methods of medication are open for adoption in any given case, and these may be designated (a) the alkaline, and (b) the acid treatment. Cases which will be improved by the one may be injuriously affected by the other, the indications for either depending largely on the nature of the responsible organism. Whilst these are being investigated, treatment should be started. A useful rough guide is the reaction of the urine. In an acid urine the pathogenic organism will probably be *B. coli*, gonococcus, or the tubercle bacillus; any of these is suitably treated by alkalis. All the remaining organisms prefer an alkaline medium, though a few may tolerate an acid one. The urine examined must have been recently passed, and the patient must not have taken any drugs which would exert an influence in this respect. The possibility of examining during the alkaline tide must also be considered.

Elimination of Organisms from an Acid Urine.

Taking the acid living types first, the gonococcus may generally be excluded by the two glass test and by the history; the tubercle bacillus by a careful consideration of the history, onset, &c.; in each case the recovery of the organisms should be attempted. The *B. coli communis* remains; here the first step is smartly to render the urine alkaline; the value of this manoeuvre is often striking. For this purpose potassium and sodium acetate or citrate are commonly used in doses of 10 to 30 gr. A greater degree of alkalinity can be obtained by using sod. bicarb. and a combination of the drugs is to be recommended.

The patient is too often allowed to rise from bed too soon. A relapse frequently follows and a return to bed and a second early rising may cause a further relapse. I believe in a prolongation of the initial confinement to bed for a period of a week or ten days after the temperature is normal and the urine has cleared, and when the invalid is allowed to get up it should only be for a short time at first; he should be well protected from cold.

Following a few days on alkaline treatment, a sudden change must be made to the acid regime, combined with the exhibition of hexamine. Alkalies are not curative but merely ameliorators of the symptoms. It is, indeed, proved that the inhibitory effect of an alkaline urine on the growth of the *B. coli* is quite inconsiderable (Jordan). The hexamine is brought into action as the symptoms are abating, in order to kill off the infection. It frequently causes a temporary increase in discomfort and urinary frequency, together with more mucus in the urine. Of this the patient should be forewarned, so that he will not suffer disappointment or suspect relapse. The change over should antedate the rising from bed by a few days.

Elimination of Organisms from an Alkaline Urine.

The first step in the treatment of alkaline cystitis is invariably an attempt to render the reaction of the urine acid. This is not always possible, but to reduce the degree of alkalinity is in itself beneficial to the patient. Much the most suitable drug for this purpose is acid sodium phosphate, the salt responsible for rendering the normal urine acid. It is given in doses of from 10 to 30 gr. If there is difficulty in achieving

an adequate acidification by such means, an adjuvant action may be obtained with ammonium benzoate (10 gr. t.i.d.). These two drugs are the only ones which have any marked effect in increasing urinary acidity. All the mineral acids, boric acid, and the organic acids may be discounted.

The degree of acidification possible is noted by the medical man, and the subsequent treatment may be considered according as it is found possible, or otherwise, to obtain a distinctly acid urine.

1. *Where an Acid Urine is Obtained.*—This group gives gratifying results in practice, because we can employ the formaldehyde antiseptics, of which hexamine is the most important. It is a compression product of ammonia and formaldehyde, and it is solely by the liberation of the latter in the urine that it obtains any antiseptic action. This action is proportionate to the quantity of formalin liberated and to its urinary concentration. Further, the liberation of formalin is only accomplished in acid urine, and the degree of acidity must be fairly high before it can be released. Ignorance as to how the drug acts must be responsible for its prescription with pot. cit. or other alkali, or in its being given with an alkaline urine. A more insidious mistake occurs when a patient suffers from some coincident trouble such as bronchitis or dyspepsia, both of which are common in cases of prostatic disease. In either case alkalis may be prescribed without their effect on the liberation of hexamine being considered. Occasionally a patient exhibits an idiosyncrasy to hexamine which generally shows itself as strangury or hæmaturia. I have seen a case in which a small dose has been followed by acute dermatitis and conjunctivitis. Always commence, therefore, with small doses (5 gr., t.i.d.) to exclude idiosyncrasy and increase rapidly to large doses of 15 or 20 gr. t.i.d. Better a powerful action for a short time than a feeble action spread over a long time (Thomson Walker). One of the most valuable functions of hexamine is prophylaxis especially following instrumentation.

2. *Where an Acid Urine cannot be Obtained.*—The problem here presented is much more difficult than the preceding one. The first move should be to get the urine as near to acidity as possible in order to diminish urinary decomposition and hinder the growth of organisms. This reduction of alkalinity may be regarded as an end in itself; it is obtained by means of the same agencies as have been discussed above. Various attempts have been made to find a compound capable of liberating formalin in an alkaline medium, but hitherto without success—at any rate with any degree of alkalinity obtainable in urine. Thus we have to resort to other drugs. Of these probably the best is ac. boric (Anson Jordan). Salol is also a drug of considerable value. Proflavine and acriflavine have recently been introduced as urinary antiseptics and are on trial. They are given by mouth in capsules in doses of 0.05 to 0.1 g. They are excreted in the urine and their antiseptic properties are best developed when it is alkaline. Present experience indicates that they have considerable value. This group of cases is the one which is generally the most suitable for local applications such as lavage.

Local Treatment.

Local treatment may be either by lavage or by installation. Lavage is a valuable adjuvant in many cases, but the indications should be carefully weighed. It should never be used in acute cases, nor in cases where the tubercle bacillus has not been definitely excluded. Where it is definitely proved that there is only one responsible organism the surgeon must carefully consider whether it is wise to run the risk of introducing secondary contamination, which may be more difficult to eradicate than the original offender. Lavage should not be instituted until other methods have been given a reasonable chance. It is chiefly valuable for severe chronic cases infected by multiple organisms; such patients have usually undergone previous instrumentation and have often alkaline urines.

In the male lavage may be done by the catheter and funnel, but is often best performed by the method of Janet, especially in chronic cases, just as it is so often practised in the treatment of a deep urethritis. An intelligent patient is easily taught to undertake this treatment himself, with the advantage that it can be done several times daily. A small quantity of the antiseptic fluid may be left in the viscus at the conclusion. In the female a rubber catheter and syringe or funnel will be employed. Never employ a hard catheter, as the vesical mucosa may be thereby injured. Washing and re-washing should continue until the fluid returns clear. In cases where the bladder is very sensitive care should be taken never to over-distend. Equally important is the rule not to allow such a bladder to be completely emptied during lavage—about 2 oz. should be left in prior to re-filling. Successive treatments may be shown to give increasing distension, and occasionally the making of a chart to demonstrate this will encourage the patient. The use of novocain, 2 per cent., or stovain, 4 per cent., will alleviate any pain from this form of treatment. The most useful wash is silver nitrate 1/2000 to 1/8000.

Sundry Further Points.

Diet and Forced Diuresis.—The diet in the early stages should consist of light nourishing fluids, especially milk, milk and water, and barley water. Actually one of the most valuable remedies at our service is forced diuresis. The patient should take at least a tumbler of fluid hourly during the early stages. Caffeine may be combined with forced drinking in order to stimulate renal activity. These large quantities of fluid act mechanically, clearing the mucosa of the bladder from pus and organisms; they also keep the urine dilute and thus bland. When the acid treatment is being administered alkaline gaseous drinks should be avoided, though during alkaline medication they are of considerable value.

As time proceeds diet will be cautiously strengthened, but so long as any evidence of cystitis remains it will be advisable to withhold any article of diet which may act as an irritant to the urinary tract. In patients under careful clinical supervision a close parallelism will be observed between the diet and the inflammatory deposit in the urine.

Climate.—The bladder is one of the most chillable organs in the body, reacting very sensitively to variations of temperature, and relapses are frequent during convalescence from the effect of cold. Chronic patients, especially sufferers from tuberculous cystitis, often experience great benefit from a change of residence to a warmer climate.

Vaccines I have not found of much use in uncomplicated cystitis, but where other portions of the urinary tract are also involved great benefit may often be obtained from autogenous detoxicated vaccines.

In all cases a practitioner should set his standard of cure by the physical components of the urine rather than by the amelioration of symptoms, making it his ambition to obtain a urine devoid of leucocytes, organisms, and excess of mucus, as a guarantee of freedom from future relapse, rather than being satisfied with the more easily obtained relief from frequency and urgency of micturition.

When antiseptics are being given, diuresis acts disadvantageously in diluting the antiseptic. In such circumstances the relative values of antiseptics and of diuresis must be carefully appraised. A good plan is to give a largish dose of hexamine one hour before retiring, and at the same time to limit the intake of fluids during the evening. A high concentration of hexamine during the period when the urine is longest in the bladder is thus obtained. If, however, there is nocturnal frequency the value of this manoeuvre will be lessened.

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Special Articles.

THE ESTIMATION OF SUGAR IN BLOOD.

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THE new knowledge which has of recent years been achieved in connexion with diabetes mellitus and the various allied conditions of abnormal metabolism of sugar has changed to a great extent our aspect of these conditions. The advances which have been brought about lie mainly in four directions: (1) diagnosis, (2) dietetic treatment, (3) insulin treatment, and (4) prognosis. The success which has crowned the efforts of various workers has been obtained not only through the enormous amount of experimental work performed chiefly in this country and in America, but through a considerable improvement in the technique of laboratory methods, whereby accurate and simplified analytical procedures have been evolved. Without these improvements progress would have been poor compared to what has been achieved. The outstanding biochemical advance which has accrued is that accurate estimations may now be made of the amount of reducing sugar in the blood; for this purpose only a few drops of blood, easily obtained by pricking the finger or ear, are needed. It is not so very long ago that an investigation of the sugar in blood required about an ounce of blood from a vein, whereas now equally reliable methods are in daily use for which two drops of blood suffice. These methods have not only made possible frequent estimations of blood-sugar in patients, but permit the biochemist to study the fate of the glucose for long periods of time after the administration of carbohydrates by the mouth, without appreciable discomfort to the patient. Of other advances the methods of estimation of the degree of acidæmia and ketosis may be mentioned, whereby the relative seriousness of severe cases of diabetes mellitus may be gauged.

The Problem as It Affects the Practitioner.

Those who have followed the recent work on this fascinating subject, and who have the responsibility of treating cases of diabetes mellitus, or of other abnormalities in the metabolism of sugar, must have realised that if they are to make accurate diagnosis and apply intelligent treatment to their patients, they must be in a position to control their efforts by estimations of blood-sugar percentage, either with or without a preliminary known dose of carbohydrate. To the specialist in these diseases, and to the biochemist, such an estimation presents no great difficulties, nor, it may be added, to the student of medicine working in admirably equipped laboratories, with efficient teachers at hand to direct his energies. But to the practitioner with limited or inadequate laboratory equipment the problem is a very serious one. A simple and easy method appropriate for his use and requiring no expensive apparatus is urgently needed. It may be frankly stated for various reasons which will be detailed below that there is no suitable method available to-day. At the present time these investigations are available for the wealthy and the poor, whilst but little provision has yet been made for middle-class patients. These may be willing and able to pay ordinary medical fees, but quite unable to afford the extra expense involved by special investigations, or special treatment which may have to be carried on during the rest of their life. This question is exercising the minds of practitioners and the public, and no solution has yet been found.

The Principles Involved in Estimation of Blood-Sugar.

For the benefit of those practitioners who have access to laboratory accommodation and possess some biochemical experience the various methods of

carrying out this estimation may be discussed from the point of view of accuracy, convenience, and cost of outlay. The operation is one of delicacy, for it must be remembered that the amount of blood usually taken for the estimation is not more than 0.2 c.cm., and the glucose in this volume of blood amounts to only 0.2 mg., or about 1/320th of a grain.

The first stage of the estimation is accurately to weigh or measure the blood taken for the estimation. If it is decided to weigh the blood, as recommended by some observers, it will be necessary to purchase a torsion balance which is designed to weigh only very small amounts up to about 0.5 g., but to weigh these accurately. The cost of such a delicate instrument, which the practitioner would scarcely need for any purpose other than this, would be from £10 10s. to £12 12s. Alternately the blood may be measured in a special pipette graduated to contain some fraction of a cubic centimetre, usually 0.2 c.cm., which is a convenient amount to obtain from a single finger prick. As these pipettes hold 0.2 c.cm., but do not give out 0.2 c.cm., it is necessary to wash them out carefully with the liquid that the blood is being placed in. There should be no difficulty in using these pipettes after a certain amount of practice, and they cost only a few shillings each.

Removal of Protein.—The next stage is the removal of the protein, which is precipitated generally by one of two methods, the tungstic acid process of Folin and Wu, or the sodium sulphate and dialysed iron method of Maclean. Other methods are recommended by certain observers, but one of the two just mentioned will be found generally applicable. In practice it is first necessary to dilute the blood with distilled water in order to dilute the blood, and to produce a convenient volume of liquid which will filter readily. The volume of the liquid prior to filtration must be ascertained, so that a known aliquot part of the liquid, and consequently an aliquot part of the original blood, may be used for the actual estimation, for during the process of filtration some of the liquid is lost. A bright colourless filtrate having been obtained, the actual estimation is made. In all, except two of the methods which it is proposed to discuss, some form of alkaline copper solution is employed, as in the familiar Fehling's or Benedict's tests, but the quantities of the various chemical substances used are necessarily much smaller. The amount of copper, however, must be kept in excess of the amount required to oxidise the whole of the sugar present in the blood filtrate. When the blood filtrate containing the glucose has been boiled with a convenient amount of the alkaline copper solution for a given time, long enough to produce as much cuprous oxide as possible, the estimation resolves itself into the determination of the amount of cuprous oxide present. Two methods are employed to determine this—(1) colorimetric and (2) titrometric.

(1) *Colorimetric Method.*—Here advantage is taken of the fact that cuprous salts give a blue colour with phosphomolybdic acid, the intensity of which colour is directly proportional to the amount of cuprous copper present. If, then, as a control, a known quantity of a standard solution of glucose is taken and boiled in a second tube for the same time as the unknown blood filtrate, both tubes being subsequently treated in precisely the same way, the colours produced may be compared, and from this comparison an estimate of the quantity of sugar in the unknown may be formed. A reliable colorimeter, such as the Dubosq or the Kober instruments, is essential, and such an instrument costs about £25.

(2) *Titrometric Method.*—Here the cuprous oxide formed by the reducing action of the glucose is converted back to the cupric oxide by adding a known amount of the oxidising agent (which must be in excess) to the blood filtrate (A) containing the unknown amount of glucose and thence some of the copper in the cuprous state; the same amount of oxidising agent is added to a control solution (B). The titration

consists in determining the amount of the oxidising agent still present in (A) which contained the unknown amount of the cuprous compound, and in (B) the liquid which contained no cuprous compound—i.e., a blank estimation. The difference in the readings of the burette corresponds to the amount of the cuprous copper present in (A). The exact quantity of glucose which would have been necessary to effect the original reduction from cupric to cuprous oxide is found by reference to prepared tables.

Method without the Use of Copper.—When copper is not used a different method of protein precipitation is employed. Here excess of picric acid is added to the blood, which has been laked by dilution with a known volume of water; the proteins are precipitated and filtered off. The solution is then made alkaline with sodium carbonate and an alkaline solution of picric acid is added. A parallel experiment is made with a known solution of glucose. The liquids are boiled for a given time and compared in a colorimeter, the colours produced being reddish-brown.

A Survey of Various Methods.

It may be of interest to discuss in more detail each method as described by its author and to enumerate the advantages and disadvantages from the point of view of the worker who has not at his command elaborate laboratories and equipment. In practice, owing to the delicacy of these operations, scrupulous care must be taken to follow in the smallest detail the technique laid down by the various authors; unless this care is maintained in each successive experiment results will be obtained which are not strictly comparable, and a series of blood-sugar curves obtained over a period of time will have no value. All standard solutions must be accurately made up or obtained from firms whose reputation for the preparation of such solutions is beyond reproach. Many of these solutions do not keep, and consequently fresh supplies must be obtained at frequent intervals. In biochemical manipulations of this type the workers who get the best results are those who are constantly performing these operations, and even then errors, often unaccountable, will creep in. Thus control experiments must be frequently performed and standard solutions must frequently be tested. A measure of facility in the use of the various varieties of pipettes and the graduated glassware is assumed.

In the following survey of the methods in use no attempt is made to describe the method in detail; the worker who decides to adopt a particular method is strongly recommended to read carefully the original paper of its author; a list of references for this purpose will be found at the end of this article.

*Bang Method.*¹—The first valuable microchemical method to appear was Bang's; this paved the way for other methods, but for various reasons which need not be discussed here it cannot be recommended, and is probably not extensively used to-day. The method requires the torsion balance.

*Folin and Wu Method.*²—These authors introduced the tungstic acid protein precipitant which forms an essential part of many methods. They worked with a considerable quantity of blood, but were also concerned with the estimation of a number of other substances in the same specimen of blood. They used the phosphomolybdic acid reagent of Folin and Denis for the sugar estimation, and in a later paper they improved on this reagent. The actual amount of the blood filtrate which they require for the estimation corresponds to 0.2 c.cm. of blood. Probably the tungstic acid method for the removal of protein is the best at our disposal, for only the minutest traces, if any, of the blood proteins appear in the filtrate.

*Mackenzie Wallis and Gallagher's Modification.*³—Mackenzie Wallis and Gallagher using this method employ the torsion balance to weigh the blood which is collected by soaking it into a piece of filter-paper weighed before and after impregnation. The

paper is then soaked in water for 45 minutes and the liquid treated with the tungstic acid protein precipitant and estimated by the phosphomolybdic acid reagent. This method requires both torsion balance and colorimeter and the 45 minutes delay is a nuisance when blood-sugar curves are being made at half-hour intervals.

*Calvert's Modification*⁴ consists in collecting the blood in a platinum capsule of known weight and weighing with the torsion balance. Protein precipitant methods and the phosphomolybdic reagent are the same in this method, but instead of comparing the colour against a glucose standard, Calvert used a piece of blue glass which has been carefully matched against the blue derived from a known amount of glucose. He thus avoids the preparation of a glucose standard colour for each estimation; this is an advantage since standard solutions of glucose do not keep well and frequent preparation of these solutions is required. A criticism of the method may be offered—that it is almost impossible in practice exactly to match a blue liquid with a piece of blue glass, and that comparison of the relative depth of two colours when they are not exactly of the same tint is often very difficult. When the platinum capsule is dropped into the distilled water the blood diffuses out very quickly; so that the method has the advantage that the precipitation of the protein may be proceeded with almost at once.

*Picric Acid Method of Lewis and Benedict.*⁵—This method need hardly be seriously considered here as 2.0 c.cm. of blood are required for the estimation. Its application is thus very limited compared with the scope of those methods requiring only 0.2 c.cm. The method is, moreover, rendered inaccurate if there is excess of creatinine in the blood, which circumstance may occur in azotemic nephritis.

*Maclean's Method.*⁶—Maclean, in 1914, brought out a method using 1 c.cm. of blood, and in 1920 modified it so that 0.2 c.cm. of blood would suffice. This modification, like the original, is a titrimetric method. The blood is measured in a pipette and run into the sodium sulphate solution (made faintly acid with acetic acid); the liquid is boiled, treated with dialysed iron, and filtered, an aliquot part of the filtrate being taken for the estimation. The liquid is boiled with the alkaline copper solution which also contains the oxidising agent iodic acid; as long as the solution is alkaline the iodic acid is present as the inert potassium salt. As soon as hydrochloric acid is added the iodic acid is liberated and reconverts the reduced copper into the cupric state. The excess of the iodic acid reacts with hydriodic acid, also formed from potassium iodide by the hydrochloric acid, and free iodine is liberated. This iodine is titrated by means of standard thiosulphate solution, starch being used as indicator, and the difference in the readings in the burette between a blank and the blood filtrate estimations give on reference to a specially prepared table the percentage of sugar in the blood. In this method neither torsion balance nor colorimeter is required, but extreme care to ensure the accuracy of the standard solutions is necessary. The thiosulphate solution used is 1/400 normal in strength and since it does not keep has to be prepared daily by dilution from 1/10 normal solution. The latter requires renewing about every two months. Certain technical difficulties in connexion with the heating of the blood filtrate and the copper solution may arise; a special gas pressure manometer is recommended to ensure a constant rate of heating. The outlay for apparatus is small when compared with many other methods, and the fact that analysts on general principles prefer titrimetric to colorimetric methods is a point in its favour.

*Cole's Modification*⁷ closely resembles Maclean's method, but the protein precipitant used is different. It appears to have no advantages over the Maclean method, and the dilute thiosulphate solution for the final titration is stronger than the one which Maclean uses, rendering the differences corresponding to the

amounts of glucose much smaller than in the Maclean method: thus it gives a smaller margin for error.

Hagedorn and Jensen's Method.^{8,9}—Hagedorn and Jensen have described a method in which zinc hydroxide is used for precipitating the proteins; the sugar is then estimated by means of potassium ferricyanide instead of copper, the final titration being achieved by iodine and thiosulphate. 0.1 c.cm. is required for the estimation. The method appears to be sound, but I have had no personal experience of it.

Conclusion.

It will be seen that there is much similarity between the various methods of estimating sugar in blood—the differences being mainly in technical detail. It rests with the individual to decide for himself which method he finds most convenient. I personally prefer the Maclean method and have found it entirely satisfactory. I believe that if sufficient care is paid to detail the practitioner with some experience of biochemical work, who has decided to undertake these estimations himself, will be able to master the technique. It must also be borne in mind that from financial considerations this method invites serious consideration. The descriptions in the original papers of the authors have been followed closely, but there is no objection to certain modifications such as measuring the blood instead of weighing it prior to adopting one of the colorimetric methods; for this purpose it will be sufficiently accurate to assume that 1 c.cm. of blood weighs 1 g. The treatment of diabetes mellitus by insulin is a matter for serious consideration in the immediate future. Whether it will become a practical proposition to give certain patients daily hypodermic injections for the rest of their lives is a problem, but one thing is certain in the light of our present knowledge, that not only will diagnosis, but also treatment, whether by insulin or other means, require control by blood-sugar estimations from time to time. To the wealthy this necessity will present no difficulties, but to the poorer members of the community expense must be a factor. If the lives of diabetics can be prolonged it seems possible that some State assistance of a financial nature will be required. It would seem rational that if sufferers from avoidable disease can receive free treatment, the unfortunate sufferers from the unavoidable disease under discussion might equally well expect State assistance.

References.

1. Bang: *Biochem. Zeits.*, 1913, xlix., 1: 1914, lvii., 30; or *Pract. Organic and Biochemistry*, Plimmer.
2. Folin and Wu: *Jour. Biol. Chem.*, 1919, xxxviii., 81; 1920, xli., 367.
3. Mackenzie Wallis and Gallagher: *THE LANCET*, 1920, ii., 784.
4. Calvert: *Biochemical Jour.*, 1923, xvii., 177.
5. Benedict: *Proc. Soc. Exper. Biol. and Med.*, 1913, xi., 57; *Jour. Biol. Chem.*, 1915, xx., 61.
6. Maclean: *Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes*. London: Constable, 1922.
7. Cole: *Pract. Physiological Chemistry*. Sixth edition. Cambridge: W. Heffer, 1920.
8. Hagedorn: *Disputats*. Kobenhavn, 1921.
9. Hagedorn and Jensen: *U.f. Laeger*, 1918.

THE Council (President, Her Grace the Duchess of Portland) and committees of the Ivory Cross announce the private view of the Ivory Cross dental film at Australia House, Strand, W.C. 2, on Tuesday, June 12th, at 5 P.M.

ROYAL SANITARY INSTITUTE.—A sessional meeting will be held on June 23rd, in the Guildhall, Cambridge, when a discussion on the Grading of Milk will be opened by Mr. J. E. Purvis, M.A., Secretary to the State Medicine Syndicate, followed by Dr. J. H. C. Dalton, Dr. F. Robinson, Councillor Alder, and Dr. Andrew J. Laird. The chair will be taken at 10.30 A.M. by Prof. H. R. Kenwood. In the afternoon visits will be paid to the Field Laboratories, Milton-road, where Dr. Stanley Griffith will give a demonstration in connexion with research on Tuberculosis, and to the Stetchworth Dairies, certified milk farm, Old Chesterton, where a party will be conducted by Mr. Ronald Kay. Those proposing to attend the meeting should notify the hon. local secretary, Dr. A. J. Laird, Guildhall, Cambridge, not later than June 16th.

THE CONSTANTINOPLE BOARD OF HEALTH.

BY F. G. CLEMOW, C.M.G., M.D.,

FORMER BRITISH DELEGATE TO THE BOARD AND PHYSICIAN TO H.M. EMBASSY, CONSTANTINOPLE.

PART III.*—THE SANITARY SERVICES.

The Red Sea Sanitary Service, the Mecca Pilgrimage, and the Hedjaz Railway.

In the Red Sea service there were but two lazarets—those of Camaran and of Abou-Saad, near Jeddah. Both have been fully described by the author in papers previously published in *THE LANCET*,¹ and need therefore only be briefly alluded to. The lazaret of Camaran, built on the island of that name near the south end of the Red Sea, was a large and in many respects an excellent institution, with good disinfecting pavilions, distilling apparatus, ice-machine and accommodation for 5000 to 6000 pilgrims. Under the Conventions all ships from beyond Bab-el-Mandeb are required to proceed to this lazaret and undergo certain measures. The lazaret of Abou Saad-Wasta-Abou Ali was a small and very imperfect establishment, built on three islands bearing those names, a few miles from the port of Jeddah. It was permitted to receive pilgrim ships conveying a number of pilgrims less than 5 per cent. of the ship's net tonnage, although, as just stated, the Conventions required all pilgrim ships from the south to go to Camaran. It also dealt with ships coming from the north. It was, however, badly provided with houses for the pilgrims; indeed, there was accommodation for some 800 only, but with tents this number might be doubled. The need of a large lazaret for pilgrim ships coming from the north had long been felt. The difficulty was to find a spot where such lazaret could be put up. Yanbo and El Wedj have both been suggested; both are exceedingly small ports, quite unsuited for the purpose, and there are no other ports on the Hedjaz coasts north of Jeddah. There were three Turkish sanitary offices in this service under a medical officer—Jeddah, Yanbo, and Hodeidah—and six with only a non-medical personnel. All, it need scarcely be added, have ceased to be on Turkish soil. The lazaret of Camaran is now administered by the British, and that of Abou-Saad by the Hedjaz authorities.

The Mecca pilgrimage and its sanitary control are questions too large and complex to be discussed at length here. The Constantinople Board had medical officers stationed at Jeddah, Mecca, and Medina; the two latter were always Moslems. They kept the Board informed on all points of sanitary interest connected with the pilgrimage. The Mecca medical officer supervised the sanitary service in that town and co-operated with other Turkish officials in carrying out measures to meet the risk arising from the overcrowding of pilgrims, or the outbreak of disease among them, and to deal with the highly insanitary conditions connected with the ceremonial sacrifice of thousands of animals, which takes place in the valley of Muna at the height of the pilgrimage. The measures taken in this latter connexion were reported to be fairly satisfactory, and were largely aided by the great heat and dryness of those regions. But there can be no question that, generally speaking, the sanitary supervision of the pilgrims after their arrival in the Hedjaz has always been inadequate,² and it

* Parts I. and II. were published in *THE LANCET* of May 26th (p. 1074) and June 2nd (p. 1126), respectively.

¹ *THE LANCET*, 1907, i., 1188, 1251, 1317, 1389, 1518, 1607, 1741, 1810; ii., 51, 114, 190, 324.

² This inadequacy had long been recognised and had been the subject of countless reports, of protests from foreign governments, of "vœux" of International Conferences, and of sporadic efforts at improvement. Finally, in 1910, the Turkish Government set up a Hedjaz Sanitary Council, a purely Turkish body, charged with the reorganisation of the interior sanitary measures in the Hedjaz, and authorised, with the consent of the Powers, to levy a special tax of 10 piastres a head on the pilgrims. It had already done something towards improving the conditions before the cataclysm of 1914.

will continue to be so until an efficient sanitary service is established there, run on modern and scientific lines. One main difficulty in the past has arisen from the fact that only Moslem officials may work there, and any intervention by the Western Powers was resented and indeed impossible. This difficulty is likely to be as great under the present political status of the Hedjaz as when it was a Turkish province; and the only hope for the future is that the Moslem world will be able to substantiate its claim to produce administrators, including medical and public health officials, as capable as those of other countries; or, failing this, that it will consent to accept the aid, or at least the advice (with some guarantee that that advice will be acted on), of European experts.

While public health supervision in the Hedjaz itself is a most important element in the problem of the effective sanitary control of the pilgrimage, it is not the only one; the problem covers all Moslem countries, and should include the preservation of the health of the pilgrims from the moment they leave their homes to the moment they return to them. The suggestion, therefore, recently made to the Health Committee of the League of Nations—that some form of Coördinating Commission, of an international character, should be set up, charged with the coördination of the measures taken by the health authorities of the various countries concerned in connexion with the Hedjaz and other pilgrimages—is to be commended in every way, and if properly carried out should lead to invaluable results.

The Hedjaz Railway was opened to Medina in the autumn of 1908. In June of that year the Constantinople Board sent a special commission down the line, with the object of selecting a site for a lazaret, where disinfection and other measures could be applied to the pilgrims travelling by the line. An excellent site was chosen at Tebuk,³ some 450 miles south of Damascus, and the beginnings of a large and effective lazaret had been made there before the war put an end to all such schemes. The opening of the line greatly increased the danger of the spread of disease by the returning (and even by the descending) pilgrims, and its sanitary protection will always be an important part of the main problem. The line passes through territory that is now partly under the authorities of the kingdom of the Hedjaz, partly under British, and partly under French mandatory authorities. Here again there will always be great need of effective coördination in the application of sanitary measures.

The Turco-Persian Frontier Sanitary Service and the Shiah Pilgrimage.

The sanitary organisation on this frontier and in connexion with the movement of pilgrims and carriage of dead bodies to the Shiah holy places has already been fully described in THE LANCET,⁴ and may be very briefly summarised here. There was a small and quite inefficient lazaret at Basra, and a better, but still imperfect, one at Khanikin, on the main route from Bagdad to Kermanshah in Persia. As an exception to the general rule that the Constantinople Board did not deal with interior sanitary measures, the Board had also medical officers at Bagdad, Nejef (the principal "holy city"), and at Erzeroum, Bayazid, and Van, near the northern part of the frontier. In addition there were sanitary offices, with clerks, foot-guards, and mounted guards, to check "sanitary contraband" (particularly in the matter of dead bodies) at 17 other places in those regions. The Board sent also a delegate to the Sanitary Board in Tehran, and had another "delegate" permanently stationed at Kermanshah, in Persia, as a "poste d'observation."

THE FINANCIAL ARRANGEMENTS OF THE BOARD.

It only remains to speak briefly of the Board's financial arrangements. At the time of the Constantinople International Sanitary Conference of 1866, it was realised that the tariff, as fixed in 1840, did not provide a sufficient income to cover the expenditure; and, as the Ottoman Government had to make up the difference, an effort was made to introduce a new and higher tariff. As the Board itself did not possess the power to do this, another international body had to be created, expressly charged with the study of this question and the preparation, if necessary, of an increased tariff. This body, known as the Mixed Commission for Revision of the Ottoman Sanitary Tariff, first met in 1869 and published its report in 1871. The report, signed by the Porte and all the Powers interested, was mainly concerned with proposals for the increase of sanitary dues and with the general financial arrangements of the Board and the administration it directed. Thus it laid down that the cost of construction, hire, and upkeep of lazarets, quarantine stations, and health offices, as also certain other expenses, were to be borne by the Turkish Government, while the pay of the employees and all other outlay was to be covered by the Board's funds. The latter were derived from taxes on shipping, quarantine dues on pilgrims and passengers, and a charge on all dead bodies brought for burial in the Shiah holy places of Mesopotamia.

This is but a very brief outline of a somewhat complex financial arrangement. It was a good working scheme, if it had been kept to by both sides, but unfortunately it was not. When the first Mixed Commission dissolved in 1871, it was agreed that that body should in future meet every three years to revise the Sanitary Tariff in accordance with the varying needs of the time. This agreement, however, was not adhered to. It met again in 1875-76; in 1881-82; and in 1888-96. Each successive Commission laid down in increasing detail the functions and powers of the Board, prescribed the number and composition of its various committees, fixed the nature and pay of every post in the sanitary service, and so forth. The report of the fourth Commission was, however, rejected by Turkey and some other Powers, and consequently that of 1882 remained in force until a fresh Mixed Commission was convoked at the end of 1904. This fifth Mixed Commission held its first meeting in January, 1905. It very soon became clear that the delegates composing it (who were for the most part, but not entirely, the delegates sitting on the Board itself) had no first-hand knowledge of the large and important sanitary establishments they were called upon to administer. At the end of 1905, therefore, a Commission of Inspection, composed of three members of the Board, was sent to inspect and report upon the lazarets of the Red Sea and Syrian coasts, and to indicate the reforms needed and their probable cost. Subsequent Commissions of Inspection visited each and all of the sanitary establishments named above, and produced a series of detailed reports, illustrated by maps, plans, and photographs, and accompanied by estimates, prepared by architects or engineers attached to the various missions, of the cost of the repairs proposed. It was my privilege to be a member and the "rapporteur" of each of these Commissions, with one exception (that to the northern part of the Turco-Persian frontier).

By the end of 1910 the larger number of the missions of inspection had completed their tasks and presented their reports, and the Mixed Commission was thus in a position to estimate the cost of the greatly needed reforms. The situation was then, and had been for a long time, a peculiarly anomalous one. The Constantinople Board possessed a large invested reserve fund (derived mainly from the fact that the sanitary tariff had been fixed at too high a figure), yet it was unable to employ this for the repair of the lazarets, since, as stated above, such repairs were,

³ The question of the choice of Tebuk and the whole problem of the sanitary protection of the line were discussed at length in papers published by the author in the *Revue d'Hygiène et de Police Sanitaire*, March and April, 1910.

⁴ THE LANCET, August 12th, 19th, and Sept. 2nd, 1916.

under binding conventions, at the charge of the Turkish Government. As a result, however, of the continual evasion by the latter of its obligations in this matter, and in spite of large advances made by the Board to that Government to cover the cost of the most urgent repairs, many of the lazarets had fallen into a state of most serious disrepair. Early in 1911 it fell to me, as British delegate, to make a series of proposals for putting an end to this anomalous state of affairs; and on May 20th of that year, an Interim Report of the Mixed Commission, embodying those proposals with but slight modifications, was signed by all the members of the Commission, Turkish and foreign. Briefly, the decisions thus taken may be summarised as follows: Without modifying the conventions then in force, and as a wholly exceptional measure to meet a wholly exceptional situation, a sum of £T.280,000—over a quarter of a million sterling—was voted from the Board's funds, to be spent in putting in order all the Turkish lazarets and disinfecting stations and in creating new ones. At the same time the sanitary dues on shipping were reduced by 20 per cent.; the pay of the employees was largely increased; and some other minor reforms were introduced. In the course of 1911-12 the Interim Report was ratified by the Porte and the Powers, and several of the decisions had already been applied, when the outbreak of the Turco-Balkan war of 1912-13 inevitably suspended the execution of the others, and all hope of their being carried out disappeared when the world cataclysm of 1914 supervened.

The Board since 1914.

Of the latest phases of the Constantinople Board of Health and of the manner in which the sanitary administration entrusted to it was conducted during the war and since the Armistice, it will be impossible to speak at any length here, since to do so would be to touch upon many questions of very recent political history and matters which are outside the scope of this survey. It may, however, be stated that in October, 1914, a few weeks before Turkey came into the war, the Ottoman Government declared the Capitulations at an end, and this was immediately followed by an intimation that the presence of foreign delegates on the Board of Health, dependent ■ it was on those Capitulations, was no longer necessary. Neither of these arbitrary and unilateral declarations was accepted by the Powers. After the entry of Turkey into the world war, the Turkish Government took over the sanitary administration and continued to maintain it as a Turkish institution. But navigation in Turkish waters had practically come to an end; the pilgrimages, Sunni and Shiah, had all but ceased or had passed out of Turkish jurisdiction; and it was only by hand-to-mouth expedients that anything in the nature of a system of sanitary defences was maintained at all. Fortunately the Board's reserve funds were mostly deposited in banks outside Turkey, and therefore remained intact. On the occupation of Constantinople by the Allies after the Armistice, the matters formerly dealt with by the Board were taken over by various Inter-Allied sanitary commissions.

SANITARY ORGANISATION IN THE FUTURE.

The future of the sanitary organisation in Turkey must be passed over even more briefly. The only portions of the maritime sanitary defences in what remains of the Turkish Empire that are of primary interest to Western Europe are those in the Straits; but they are of vital interest from the sanitary point of view. Whatever may be the political and territorial changes brought about in those regions when peace again reigns there, the Straits that join the Black Sea with the Mediterranean must always offer great risk for the importation of disease to Turkey and to other European countries. The danger is not only great but is an increasing one. For, on the one hand, when peace is restored, a great extension of the network of railways in the Caucasus, Asia Minor, Central Asia, Siberia, Mesopotamia, and Persia may confidently be anticipated. And, on the other hand,

the number of pilgrims to the Hedjaz has enormously decreased during the last nine years, and this can only mean that there is taking place in those countries a great accumulation of Moslems who are only awaiting peace to accomplish their Haj. The result will be that, when free movement is re-established, there will be a vast outflow of passengers and pilgrims coming from Black Sea ports and passing through the Bosphorus and Dardanelles to their various destinations; and Europe may well demand that a strong system of sanitary defences be established and maintained to her satisfaction in that important waterway. These considerations have already engaged the attention of the Health Committee of the League of Nations and of the International Health Office in Paris, and they were prominently brought forward in the recent negotiations at Lausanne.

THE NEW AND PROJECTED BUILDINGS AT UNIVERSITY COLLEGE, LONDON: VISIT OF THE KING AND QUEEN.

ON May 31st the King and Queen visited University College for the purposes of laying the foundation-stones of the new obstetric hospital and the new nurses' home of University College Hospital and of opening the new anatomy building of University College, which was described in the columns of THE LANCET last week.

Address and Presentations.

In his address to the King, Sir Ernest Hatch, chairman of the General Committee, explained that by Mr. John D. Rockefeller's munificent gifts of £835,000 to the Medical School and £370,000 to University College, the governing body was placed in a position to proceed with a scheme for the erection of new buildings for anatomy and the allied sciences of histology and embryology, and for the extension of facilities for teaching physiology and pharmacology. Further, the hospital and the medical school were enabled to provide 120 additional beds for the purposes of the medical and surgical units, and 60 beds for a new obstetric unit, with adequate provision for laboratories, including a special laboratory for biochemistry, and to build and equip a new nurses' home to provide accommodation incidental to these changes.

The following ladies and gentlemen were then presented to their Majesties by Sir Ernest Hatch: Lord Oranmore and Browne, vice-chairman of the General Committee; Major H. A. Wernher, chairman of House and Finance Committee; Sir Herbert Samuelson, member of the General Committee; Sir John Rose Bradford, senior physician; Mr. Raymond Johnson, senior surgeon; Dr. G. F. Blacker, Dean of the Medical School; Dr. A. M. H. Gray, Vice-Dean of the Medical School; Dr. Herbert Spencer, senior obstetric physician; Prof. T. R. Elliott, director of Medical Unit; Mr. C. C. Choyce, director of Surgical Unit; Mr. Paul Waterhouse, architect of the new nurses' home; Mr. George Hornblower, architect of the new obstetric hospital; Mr. Arthur H. Barker, consulting engineer for new buildings; Mr. J. Gerald T. Buckle, secretary to the corporation of the hospital; Miss D. Finch, R.R.C., late matron; Miss R. E. Darbyshire, matron; Dr. L. H. W. Williams, President of University College Hospital Medical Society; and Mr. Walter Lawrence, contractor for the building. The following were also presented by the Vice-Chancellor of the University of London: Sir E. Cooper Perry, Principal; Sir Gregory Foster, Provost; Mr. A. T. Taylor, chairman of the Building Committee; and Prof. Elliot Smith, Dean of the Faculty of Medical Sciences.

The King's Reply.

The King, in reply to the address, said there could be but few instances on record in which any foundation had received, like this College and Medical School, £1,200,000 from a single benefactor in a single gift. And the magnificent generosity of the Rockefeller Trustees was the more impressive since it had been bestowed by a citizen of the United States of America.

upon a college and hospital in London, and thus upon the people of Great Britain and the Empire. It has been said, he continued, that science knew no frontiers, and, indeed, the declared purpose of the Trustees was "to promote the well-being of mankind throughout the world." That they should have selected the University of London to receive this princely endowment was not merely a high and well-deserved compliment and the creation of yet another tie of sympathy and friendship which linked us with the United States, but it was also the evidence and declaration of their conviction that the progress of science and the welfare of mankind were not delimited by national or racial boundaries, and that work done

first was the maternity hospital and the obstetric unit, of which it forms a part. The Queen had always been actively interested in the care of maternity and infant life and keenly conscious of its fundamental importance to the national health. It was unfortunately true that the present position was not wholly satisfactory, and that every year many lives were lost in childbirth and many women suffered injuries to health which might be prevented if better facilities for treatment were available. Two of the chief requisites for bringing about a better state of things were to ensure that medical men were well and efficiently trained for their work, and to provide maternity hospitals in which patients may be received. The Queen was also



Facade of the New Anatomy Building at University College, London.

here in London for the relief of human suffering, the improvement of medical education, and the advance of science was a service to the whole world.

It was not, however, only the magnitude of the endowment which lent importance to the occasion. These buildings were designed for new and far-reaching developments in the traditional organisation of British medical education. The Rockefeller Trustees were chiefly influenced in their gift by the establishment at the College of what was known as the "unit system" of medical teaching, the essence of which had been explained in the memorandum¹ on Medical Education in England, recently published by the Ministry of Health. This was a substantial development of the traditional British system, which entrusts the clinical teaching of medicine to men of distinction who are actively engaged as private practitioners. No appreciation could be too great for the devotion with which eminent physicians and surgeons had given, and were giving, their services to the treatment of hospital patients and the training of students. But the advance of knowledge and the ever rising standard of medical education had necessitated reorganisation, which would give impetus to the more effective training and equipment of the British practitioner, with corresponding benefits to the health, well-being, and happiness of the people. The underlying principle was as old as Ecclesiasticus: "The wisdom of a learned man cometh by opportunity of leisure; and he that hath little business shall become wise." Its specific application to medical teaching and research was new, in this country, at all events.

There were two features in the scheme of which the Queen had learned with particular satisfaction. The

gratified that the claims of the nursing service had not been overlooked.

Laying of the Foundation-stones.

After the foundation-stones had been laid, that of the obstetric hospital by the King and that of the nurses' home by the Queen, the King opened the doors of the new anatomy buildings by pressing an electric button, and their Majesties visited the lecture theatre, the library, and the dissection rooms, and were particularly interested in the anatomical transparencies which are intended to facilitate the study of anatomy by comparison of those transparencies with X ray appearances. An X ray photograph of the mummy of Tothmes IV., taken several years ago for the purpose of determining his age, also greatly interested both the King and the Queen, and His Majesty evinced his acquaintance with anatomical learning by explaining to the Queen the significance of certain X ray appearances in connexion with epiphyseal development.

In the museum the following presentations to their Majesties were made by Viscount Chelmsford, chairman of the College Committee: Mr. Felix V. Schuster, a treasurer of the College; Prof. F. M. Simpson, the architect; Sir James Carmichael, the contractor; Prof. J. P. Hill, the Vice-Dean of the Faculty of Medical Sciences; Prof. E. H. Starling, the Jodrell Professor of Physiology; Prof. D. M. S. Watson, Jodrell Professor of Zoology and Comparative Anatomy and Dean of the Faculty of Science; Miss Winifred Smith, the tutor to women students; Dr. Walter Seton, the secretary of the College; Dr. H. Woollard, the Sub-Dean of the Faculty of Medical Sciences; Mr. J. Harris, the President of the Union Society; and Miss Joan Lush, the President of the Women's Union Society.

¹ See THE LANCET, May 5th, p. 909.

PREVENTION OF VENEREAL DISEASE IN THE CIVIL COMMUNITY. REPORT OF THE COMMITTEE OF INQUIRY.

THE Committee of Inquiry on Venereal Disease has now reported to the Minister of Health. This Committee was constituted pursuant to correspondence which passed between Sir Alfred Mond, then Minister of Health, and Lord Dawson in the early part of last year. Sir Alfred Mond then wrote:—

"I have noted with interest your proposal that a committee of medical men possessing the requisite special knowledge should be constituted to inquire into certain aspects of the problem of venereal disease. I understand that in your opinion the best hope of solving this complex problem is first to endeavour to secure an authoritative pronouncement on its medical and medico-administrative aspects, the more so as men of eminence hold divergent views upon it. The community as a whole would then consider this medical pronouncement side by side with the weighty moral and social issues involved, and through its responsible representatives determine the right policy to be pursued. As Minister of Health I am deeply concerned with this grave problem, and write to say that I will afford encouragement and support to the holding of the investigation."

REFERENCE AND PERSONNEL.

The reference to the Committee was in the following terms: "To consider and report upon the best medical measures for preventing venereal disease in the civil community, having regard to administrative practicability, including cost"; and its membership consisted of:—

Lord Trevethin (Chairman); Mr. T. J. C. Tomlin, K.C. (Vice-Chairman); Mr. C. J. Bond, F.R.C.S.; Surgeon-Captain Reginald Bond, R.N.; Dr. John Brownlee; Prof. W. Bulloch, F.R.S.; Dr. D. S. Davies; Prof. G. Dreyer, F.R.S.; Group-Captain Martin W. Flack, M.B.; Lieut.-Colonel F. E. Fremantle, M.P.; Dr. Dorothy Hare; Prof. H. R. Kenwood, M.B.; Major-General Sir W. B. Leishman, M.D.; Dr. F. N. K. Menzies; Sir Frederick Mott, F.R.S.; Dr. Morna Rawlins; Dr. J. H. Sequeira; Sir Bernard Spilsbury, M.B.; Mr. Kenneth Walker, F.R.C.S. (Prof. Bulloch found himself unable to attend the meetings of the Committee and resigned his membership at an early stage.)

PROCEDURE.

The Committee held 28 meetings (not including seven meetings of subcommittees) and examined orally a large number of witnesses in the order as follows:—

Brevet-Colonel L. W. Harrison (Ministry of Health); Sir Archdall Reid, M.D.; Dr. E. W. Hope (M.O.H., Liverpool); Dr. W. A. Young (Asst. M.O.H., Manchester); Dr. Margaret Rorke (M.O. in charge V.D. Clinics, Royal Free Hospital and Blackfriars Skin Hospital); Dr. Charles Franks (V.D. Officer, Durham County Council); Dr. David Lees (M.O. in charge V.D. Clinic, Royal Infirmary, Edinburgh); Mr. H. Wansey Bayly, M.R.C.S., and Lieut.-Colonel E. T. Burke, M.B. (representing the Society for the Prevention of Venereal Disease); Dr. A. Mearns Fraser (M.O.H., Portsmouth); Dr. John Robertson (M.O.H., Birmingham); Sir Malcolm Morris and Dr. Otto May (representing the National Council for Combating Venereal Diseases); Lieut.-Colonel P. H. Henderson (Asst. Director of Hygiene, Eastern Command); Major A. T. Frost (O.C., Military Hospital, Rochester-row); Dr. H. Hyslop Thomson (C.M.O., Herts); Dr. C. E. Jenkins (Pathologist, Salford Royal Hospital); Surgeon-Captain P. H. Boyden, R.N.; Dr. R. A. Lyster (C.M.O., Hants); Mrs. F. A. Hornibrook (Miss Ettie Rout); Lady Barrett, Dr. Eric Evans and Dr. Louisa Martindale (representing the Medical Women's Federation); Dr. J. Middleton Martin (C.M.O., Gloster); Dr. Douglas White (representing the Association for Moral and Social Hygiene); Mr. H. W. S. Francis (Ministry of Health); Sir Leslie Mackenzie and Dr. T. F. Dewar (Scottish Board of Health); Dr. J. McGregor Robertson (Consulting Physician, Stobhill Infirmary, Glasgow); Dr. F. J. H. Coutts, Dr. E. P. Manby, and Dr. H. Meredith Richards (Ministry of Health); Mr. E. B. Turner, F.R.C.S., Sir Jenner Verrall and Dr. R. A. Bolam (representing the British Medical Association); Dr. F. C. Shrubbsall (Principal A.M.O., London County Council); Mrs. R. P. Wethered and Mr. S. Cohen (representing the Associated Societies for the Care and Maintenance of Infants); Dr. R. D. O'Leary (Med. Supt., Bethnal Green Infirmary); Mr. Frank Kidd, F.R.C.S.; Dr. A. L. Baly (Med. Supt., Lambeth Infirmary).

In addition written statements were received from: Squadron-Leader A. Grant, M.B. (Royal Air Force); Sir James W. Barrett, M.D.; Surgeon-Commander S. F. Dudley, M.B.; Surgeon-Commander D. H. C. Given, M.D.; Dr. Lydia Henry (Asst. M.O.H., Blackburn); Surgeon-Captain L. Kilroy, M.R.C.S.; Major-General Sir W. B. Leishman, M.D.; Dr. J. W. S. McCullough (Chief Officer of Health, Provincial Board of Health, Ontario); Surgeon-Commander R. J. MacKeown, M.B.; Surgeon-Commander R. J. G. Parnell, M.R.C.S.

The Committee also referred to a large quantity of literature, both British and foreign, relating to venereal diseases.

PREAMBLE.

Under the terms of reference the functions of the Committee were confined to the consideration of medical measures. Having regard, however, to the origin and nature of venereal diseases, the Committee felt that, in relation to the civil community, medical measures alone could never operate as an absolute preventive of disease, but their success must always depend largely upon the attitude towards them of the community and the coöperation of the community in securing their largest effect. This coöperation could only be hoped for if full knowledge of the nature of the problems to be faced becomes common property. Other measures should be employed contemporaneously with medical measures if the latter are to be made a success. For example, the extension of knowledge as to the nature of venereal disease and its consequences is of the first importance. The community should, as far as possible, be made to appreciate:—

(a) That promiscuous intercourse is the main cause of the prevalence of venereal disease.

(b) That there is no absolute preventive except continence, and a single exposure may result in infection.

(c) That a large number of the sufferers from venereal disease are innocent persons, especially women and children.

(d) That syphilis is a disease of great gravity which, if not treated in its early stages, may have serious results, including affections of the circulatory system and of the nervous system, as, for example, general paralysis of the insane.

(e) That syphilis is transmissible by a mother to her children, and is a frequent cause of miscarriages, still-births, and deaths in early infancy, and, in children who survive, of mutilating deformities, deafness, blindness, mental disease, and other defects.

(f) That gonorrhoea is a more serious disease than is commonly believed, and, if not promptly treated, may have serious after-consequences.

(g) That gonorrhoea is a frequent cause of sterility and serious pelvic disease in women and a cause of blindness in children born of women suffering from gonorrhoea.

(h) That the presence of these diseases in the community is a menace to the maintenance and advancement of the physical and intellectual standard of the race.

Again, in addition to the spread of knowledge, it is necessary that measures should be pursued which will diminish those conditions of life which tend to foster promiscuous intercourse and the spread of disease.

SCOPE OF MEDICAL MEASURES.

Medical measures fall into two categories: (1) Medical measures for preventing disease in, or minimising the risk of disease to, persons exposed to infection; and (2) medical measures for rendering non-infective and curing diseased persons.

1. Measures for Prevention.

With regard to these, highly controversial questions are involved. It is established that in the laboratory under conditions approximating to those which obtain in intercourse, disinfectants will destroy both *Spirochaeta pallida* and the gonococcus, and we think that a man who after exposure is thoroughly and promptly disinfected by disinfectants of appropriate nature and strength, runs little risk of infection. The chance of failure, however, increases rapidly as the interval between exposure and the application of disinfectants lengthens, and the conclusion seems to be that in syphilis such disinfection as mentioned above within an hour would generally be successful, and that in the case of gonorrhoea it has a prospect of success after a longer interval. It seems, however, to be

agreed on all hands that it is extremely difficult for a woman to disinfect herself, and that the prospects of success from disinfection by another person, however skilful, are in the case of a woman less than in the case of a man.

The question of disinfection falls to be considered under two headings: (i.) Disinfection by the person himself (hereinafter called *self-disinfection*), and (ii.) disinfection at the hands of a trained person (hereinafter called *skilled disinfection*).

Self-Disinfection and Skilled Disinfection.—Obviously the chances in favour of success are greater in the case of skilled disinfection than in the case of self-disinfection, and we see no reason to doubt that an intelligent man, if furnished with reasonable instructions, could in favourable conditions effectively disinfect himself. The foregoing conclusions as to disinfection of the individual do not, however, carry very far in determining the question whether it is advisable for the purpose of preventing venereal disease in the civil community to introduce any system or measures for affording to the general public facilities for disinfection. From the nature of the case there is very little direct evidence to assist a conclusion. The matter is largely one of speculation, influenced in each case by the views which the exponent holds generally in regard to the tendency of human nature and on questions of a moral and social character.

Conditions of Success.—The important evidence available under this head is derived from the experiences which have been obtained from measures taken in the fighting forces of our and other countries. We have had placed before us a large body of evidence of this character relating both to self-disinfection and skilled disinfection. Where satisfactory results were recorded, a great difficulty arises in determining how far those results were due to the prophylactic methods employed, or were influenced by other factors in the case, such, for example, as regulation of hours of leave of absence, control of, or exclusion from, dangerous places, liquor control, imposition of penalties upon men becoming infected, the provision of facilities for recreation, and the moral effect in time of war of appeal for restraint on grounds of patriotism. Further, the prevalence of disease among women has probably varied widely in different areas, and it has rarely been measured.

Where, however, satisfactory results were not recorded, discipline appears to have been defective or the control slack, or the medical supervision or instruction inadequate or lacking in enthusiasm, and there is much force in the argument that in any large community a condition of control and influence affecting the life and conduct of all its members such as obtains in a military body under efficient command is essential to securing substantial results from any system of disinfection.

We think, however, that we are justified upon the evidence in coming to the following conclusion:—

That in a community where there has been efficient instruction and where there is such a condition as arises from the control and influence mentioned above substantial results may reasonably be expected to follow from prophylactic measures, but that the actual result is often less favourable than has been claimed.

Question of Public Facilities.—It must be remembered that, to a large extent, exposure to infection takes place in conditions in which prompt disinfection is either impossible or can only be carried out at great disadvantage. Further, the application of disinfection by a man to himself after exposure demands an effort and care which the circumstances do not tend to promote. It is urged by some that any system of disinfection would tend to increase the number of exposures and to raise the disease rate. We have received no evidence of facts in support of this view, and we are inclined to think that those who hold it attach too much weight to the deterrent effect of the fear of disease. But, however this may be, upon the evidence which we have heard we conclude that the success of any general public facilities for

self-disinfection is likely in the civil community to be very small. At the same time, in face of the fact that disinfection in the case of an individual user, if properly and promptly applied, will in all probability be successful, we do not think that there is any justification for putting obstacles in the way of individuals who desire to procure the necessary disinfectants. The law does not to-day prevent the sale of sheaths, which afford by mechanical means a measure of protection against venereal disease, and we think that the law should be altered so as to permit properly qualified chemists to sell ad hoc disinfectants, provided such disinfectants are sold in a form approved, and with instructions for use approved by some competent authority. We suggest that the Medical Research Council should be invited to undertake this task. We think, however, that the commercial advertisement of ad hoc disinfectants should be prohibited. From a medical point of view the instruction by medical officers of venereal disease clinics of male persons attending such clinics in the preventive use of disinfectants would afford a useful means of educating the community.

Relative Cost.—Our view is that money spent on a general system of providing facilities for self-disinfection would certainly be less profitable than money spent either on treatment of disease or on those measures of education and improvement of social conditions to which we have referred above. With regard to skilled disinfection, its chances of success must necessarily be much limited by reason of the time that will generally elapse between exposure and disinfection. The cost of any general system of skilled disinfection would be large; it is a system which is wholly inappropriate to rural districts or small towns, and we do not recommend its adoption as part of any general system.

II. Measures for Treatment of Disease.

With regard to the treatment of disease, we have reached the following conclusions:—

(i.) That, speaking generally, the general medical practitioner is not yet adequately equipped with the most advanced knowledge of venereal diseases and their treatment to enable him to deal competently with all the cases that come before him, and that an improvement in medical education in regard to venereal disease is necessary; and

(ii.) That the work of existing venereal disease clinics is of high value, and that the system is one which ought to be encouraged, extended, and improved.

Defaulting.—With regard to clinics, one of the difficulties in practice arises from the tendency of patients to cease treatment before they have completed their course. According to the statistical evidence the amount of this defaulting is serious, but a closer investigation carried out in some treatment centres shows that by no means all the patients who have discontinued attendance before completing treatment were infectious. A large number of syphilis cases attending these centres were from the commencement of the treatment past the infectious stage. Further, in gonorrhœa cases the standard of cure suggested by the Ministry of Health is very high, and to comply with it patients must be treated long after all bacteriological evidence of the presence of gonococci has disappeared. Many cases classed as having failed to complete treatment appear to have ceased attendance with negative bacteriological tests for gonococci, and it is reasonable to suppose that a fair proportion of these were not infectious. The conclusion is that from the point of view of the public health the defaulting is not so serious as the statistics make it appear. It remains, nevertheless, an important factor in the spread of venereal disease.

Notification.—The question of defaulting is a topic which necessarily leads to the consideration of the question of compulsory notification of venereal disease. Apart from any statistical value which may result from notification of disease, notification itself is of little assistance unless it is supported by a system of compulsory treatment, and, if necessary, detention. It is a fact that the stigma which venereal disease

carries renders many sufferers reluctant to submit themselves to treatment, and sufferers will surely be led into concealment by any measures which threatened publicity. The principle of the present system is, by maintaining secrecy, to encourage sufferers to come to treatment and to continue treatment; and we think that in the present state of public opinion any system of general compulsory notification of venereal disease would tend to concealment and would prove a backward step.

It has been suggested by some that in order to secure unbroken attendance of patients at clinics a modified form of notification, supported by appropriate compulsory measures, should be applied to those who have once attended the clinics in order to secure their continued attendance; but in our view such a system would be more likely at the present time to deter than encourage attendance, and it seems difficult to justify the imposition of a penalty on those who have come for treatment while leaving untouched those who make no effort to seek treatment.

There is another grave difficulty in the way of any form of notification, reinforced by measures to compel treatment, that in the present state of knowledge there is no standard of non-infectivity or cure generally accepted by the medical profession, and until this has been attained it is difficult to see how any system involving notification and compulsory measures of treatment could be applied.

Improvement and Extension.—One main objective in our view should be the improvement and extension of the present clinic system. There are many respects in which we think improvements might be made:—

The provision of more suitable accommodation, the extension of hours of sessions, including greater facilities for intermediate treatment of gonorrhoea, a more adequate provision of beds for in-patient treatment, the establishment of more hostels for women attending clinics and living under social conditions which render it difficult for them to treat themselves in their homes, and the establishment of more homes or hospital beds for the treatment of children.

Instruction and Warning.—As it is agreed that it is essential for the prevention of disease that there should be widespread knowledge among the community of the nature and consequences of these diseases, it follows that the importance of giving repeated personal instruction and warning to patients attending the clinics cannot be overstated. We think that this duty must always devolve mainly on the doctors, but that it might well be supplemented by trained social workers, who for this purpose and that of giving general advice and assistance should be attached to the staff of the clinic.

Pregnancy.—It has been shown that if syphilis is detected in the pregnant woman, treatment during pregnancy is remarkably successful in securing healthy offspring, and gonorrhoeal infection of the infant at birth may generally be prevented if the danger is known. Increased facilities for medical supervision of women during pregnancy is desirable, and may in part be obtained by an extension of the system of ante-natal clinics, and by the instruction of midwives who would refer suspicious cases to a doctor. In this connexion we would also call attention to the importance of including instruction on venereal diseases in the general training of midwives and nurses.

Finance.—All improvements must no doubt be limited by the funds available, but it would facilitate the provision of more adequate accommodation if a system of capital grants such as have been made in connexion with the treatment of tuberculosis were available in proper cases. We are not in a position to make recommendations more specific than the above, and we have therefore confined ourselves to indicating some of the directions in which improvement is possible. There seems to be unanimity amongst those who have given evidence before us as to the desirability of making patients who can afford to do so pay for their treatment at the clinics; but in view of the importance of encouraging attendance for treatment, we do not think that any compulsory

step can usefully be taken at present to secure this result.

Rural Areas.—We think it would be desirable, if a practical scheme could be worked out, that, with a view to providing treatment for patients in rural areas or districts where clinics are not easily available, a panel of medical practitioners should be constituted through whom treatment could be provided. This might be done by a development of the present system, under which a free issue of salvarsan substitutes is made to certain approved practitioners. It would have the further advantage of increasing the number of practitioners with experience in the treatment of venereal diseases.

Poor-law Patients.—Some evidence has been adduced before us in regard to Poor-law infirmaries, and we think it necessary to organise more thoroughly the methods which obtain at the present moment in Poor-law infirmaries for the treatment of venereal disease. It would, of course, be desirable from the medical point of view that those who enter Poor-law infirmaries suffering from venereal disease should be detained for treatment and cure, and indeed a recommendation to this effect was made by the report of the Royal Commission on Venereal Diseases, but the uncertainty as to the standard of non-infectivity and cure to which we have already referred seems to us a difficulty in such a measure. The same observation would apply to any proposal for the detention after the expiration of their sentences of prisoners found to be suffering from venereal disease. We doubt whether at present any more can be done than through the agency of social organisations, such as the Prisoners Aid Society and others, to endeavour to influence the sufferers to obtain and continue proper treatment at the clinics.

Special Classes.—In connexion with the spread of venereal disease we think that the close attention of the authorities concerned should be given to the following points:—

- (1) The entry into this country of persons suffering from venereal disease may be a serious source of danger.
- (2) The treatment of seamen suffering from venereal disease is a matter of great importance and requires special organisation.
- (3) There are found to be a considerable number of persons suffering from venereal disease among mental defectives, and the present arrangements for their control and treatment are inadequate.

CONCLUSIONS.

We do not in this report discuss many proposals which have been made to us with reference to alterations of the existing law with regard to venereal disease, as, for example, that it should be made a statutory offence knowingly to do any act calculated to expose any other person to infection, and the enactment of measures preventing the marriage of persons suffering from venereal disease. Such topics as these do not strictly fall within the terms of our reference.

We think that properly and promptly applied disinfection in the case of an individual man would almost certainly prove effectual, but that so far as the community at large is concerned, no sufficient case has been made to justify the introduction at the public expense of a general system of facilities either for self-disinfection or skilled disinfection, and wherever there is a limited amount of public money available, we have no doubt that money spent on—

- (a) Treatment of disease;
 - (b) Continuous education of the community in regard to the nature and dangers of venereal disease and the importance of seeking prompt and skilled treatment; and
 - (c) The elimination of those conditions of life which tend to foster promiscuous intercourse and the spread of disease
- will be money better spent than any money expended on establishing a general system for affording facilities for disinfection.

Local Liberty.—Notwithstanding what we have said above we are of opinion that it may well be that in certain areas special measures for the prevention of venereal disease would be justifiable, for example, measures for dealing with defaulters, or in a large

seaport town public ablution centres for disinfection in the neighbourhood of docks, and we think that local health authorities who are able to make to the Ministry of Health a special case for some such special measure should be allowed, at any rate for some limited period, by way of experiment, to carry out the measures they propose under the present system, by which a contribution towards the expense is made by the State. In this way there may ultimately be built up a body of experience of great value in determining future policy.

It is right to add that, so far as conclusions can be drawn from the available figures of attendances at clinics, venereal disease is once more, as it was before the war, substantially declining.

In this report we have directed our attention exclusively to syphilis and gonorrhoea. Soft chancre is a purely local affection, and does not exercise any sensible influence on public health.

The views and recommendations recorded above have been based on the existing medical knowledge as to the prevention and treatment of venereal diseases, and the Committee realise that certain modifications might be called for in the light of important new knowledge, of which there are indications.

The report ends with an appreciation of the services rendered by Mr. H. A. de Montmorency, of the Ministry of Health, who acted as secretary to the Committee.

PRESENTATION TO DR. BYROM BRAMWELL.

On the afternoon of May 19th a large company assembled in the Royal College of Physicians, Edinburgh, for the purposes of presenting portraits of Dr. Byrom Bramwell, one to himself, and another to the Royal College of Physicians. About 200 persons were present, including Lord Hunter, Lord Murray, Lord Salveson, Sir Alfred Ewing, Sir William Hale-White, Sir Archibald Garrod, Sir Percival Hartley, Sir Norman Walker, Prof. Lovell Gulland, Prof. Lorrain Smith, Dr. Farquhar Buzzard, Dr. William Hunter, Dr. Morley Fletcher, Dr. Stewart Fowler, Dr. G. S. Brock, Dr. John Thomson, Dr. Haig Fergusson, Dr. Michael Foster, Dr. Mackie Whyte, Dr. W. T. Ritchie, Dr. James Taylor, Mr. A. Gray Muir, Mr. James Watt, and Mr. John Gunn. The chair was taken by Sir Robert Philip, President of the College, who opened the proceedings by calling upon Dr. F. N. Kay Menzies, hon. secretary and treasurer of the Committee responsible for the arrangements in connexion with the presentation, to make a statement.

Dr. Menzies announced the receipt of over 30 letters of apology for absence from subscribers, amongst them being letters from the Lord Provost of Edinburgh, Sir Thomas Barlow, Sir James Crichton-Browne, Sir Dyce Duckworth, Sir James Purves-Stewart, Prof. Ashley Macintosh, and Prof. Musgrove. All of these subscribers, in addition to tendering their regrets at their inability to be present, expressed their great satisfaction that the appeal had been so successful, and their approval of the form of presentation upon which the Committee had decided.

Dr. Menzies read extracts from several of these letters. The total amount received, he said, had come to over £460, and subscriptions were still coming in. The subscribers numbered over 250; subscriptions had come from all parts of the British Isles, from Canada, South and West Africa, India, Burmah, Australia, New Zealand, and the United States of America. The original intention of the Committee was to confine itself to the presentation of a portrait of Dr. Bramwell from his medical friends and old students, but in view of the large number of subscriptions received it was felt that it would be an excellent plan to present another portrait of Dr. Bramwell to the Royal College of Physicians of Edinburgh, of which he had been so distinguished a president.

Sir Robert Philip expressed the appreciation of the Fellows of the College of the fact that the ceremony was taking place in that College, which had long been associated with Dr. Bramwell's work, and of which he was so distinguished a Fellow. It was their pleasure, he said, to have Dr. Bramwell here in fresh vigour and fullness of power. A high authority, after listening to and observing Dr. Bramwell on the previous night, had remarked: "If this be the man when he is over 70, I tremble to think what he must have been 40 years ago!" Sir Robert Philip closed his remarks with a reference to Dr. Bramwell as the embodiment of the ideal modern physician.

Sir David Drummond, in making the presentation, referred to his long knowledge of Dr. Bramwell, which dated from 1876; in 1878 they became colleagues as physicians on the staff of the Royal Infirmary, Newcastle-on-Tyne. This intimate association as a colleague was not to last, as Dr. Bramwell's ambition and his desire for wider fields as a physician and clinical teacher led him to that decision which robbed Newcastle and the North of England of his eminent services as a physician, and correspondingly enriched Edinburgh. Speaking in Edinburgh, it was unnecessary for him to enlarge upon Dr. Bramwell's great ability as a teacher, upon the esteem and affection, respect and admiration, in which he has been held by generations of students. As a worker Dr. Bramwell had always occupied the front rank of clinical investigators; his published works and his recorded cases had always commanded the confidence and careful attention of the profession, and his valued opinion as a physician had been sought far and wide. Dr. Bramwell's contemporaries were his debtors, and so would their successors be; the portrait would serve to show them what manner of man their benefactor was, whilst Dr. Bramwell's name would be perpetuated with added honour through distinctions won by his able sons.

Dr. Byrom Bramwell expressed in warm terms his thanks to his medical friends and old students, and, alluding briefly to his life-work, remarked that he looked back upon his teaching as one of the great joys of his life; it was a special gratification to him to know that his old students thought well of the time that they spent under his instruction in Newcastle and Edinburgh. He described himself as having been blessed beyond measure in his family life. It was, he said, a very great gratification to him to know that one of these portraits was to be given to that ancient Royal College of which at one time he had the honour of acting as President.

Sir Humphry Rolleston, in presenting the second portrait to the Royal College of Physicians, said that Dr. Bramwell's pupils welcomed the opportunity of expressing their admiration for a true clinical teacher of world-wide fame. Not only those who had had the privilege of daily personal contact with him, but the more numerous pupils who read his written teaching, welcomed that opportunity. To no physician teacher of the great Edinburgh School, during the last 30 or 40 years, had outsiders looked up as they looked up to Dr. Bramwell. In returning to Edinburgh 44 years ago Dr. Bramwell had done much to redress the balance of the debt that England owed to the Edinburgh School. To recite what he had done for medicine would be a task like reading an address on the modern advances of the last 40 years. The Sister College in London had done honour to herself by recently admitting him a Fellow under a special by-law for the election of medical men—not members of the College—who had distinguished themselves in any branch of the science or practice of medicine. Out of 367 Fellows there were 12 such only, and of this apostolic band Dr. Bramwell was the only clinician.

Sir Robert Philip gratefully accepted the portrait on behalf of the Royal College of Physicians of Edinburgh.

Dr. Robert Hutchison proposed a vote of thanks to the Royal College of Physicians of Edinburgh for allowing the gathering to have the use of their hall,

and also thanked the President for occupying the chair. Lastly, in the name of the subscribers, he thanked the artist, Mr. David Alison, who had so satisfactorily carried out the commission entrusted to him.

The proceedings closed with cheers for Dr. Bramwell.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Dail and the Dublin Hospitals.

A DEBATE took place last week in the Dail out of the vote of £16,738 for hospitals and charities. This sum is made up of grants voted at various times by the old Irish Parliament or the British Parliament in aid of various Dublin hospitals, and they are without system and proportion. The amounts bear no relation to the absolute or relative needs of the several hospitals. Mr. T. Johnson asked that the Ministers for Home Affairs and for Finance should consult in order to devise a method of financing the hospitals to a much greater extent. Mr. D. Figgis urged the appointment of a commission to reconsider the grants and treat the hospitals as primarily a public responsibility. Sir James Craig supported Mr. Figgis's demand and argued against any State control of the hospitals. He thought that State control would increase the expense and diminish the efficiency of the hospitals. He thought a commission ought to report on the financial position of the hospitals. Mr. Blythe promised that the whole matter would be considered very shortly, and not, as in the past, with one department looking after one section and another looking after another. A public health Bill was being drafted.

The Sweepstakes Bill.

The Public Charitable Hospitals Bill, generally known as the Sweepstakes Bill, came up in the committee stage before the Dail last week. After some debate it was referred to a select committee, with power to examine witnesses and call for papers and records. Enthusiasm for the Bill seems to have evaporated, and the reference to a select committee was spoken of—though not without protest—as a decent interment. It is worth noting that the promoter of one of the recent sweepstakes—while keeping his contract with the hospital concerned—admitted that the venture had not been over-successful.

A Forthcoming Census.

In the Dail last week the Minister for Local Government announced that it would be desirable to have a census soon. The census in Ireland has been due since 1921. Preparations were being made in that year to have the census taken at the same time as it was to be taken in Great Britain. The condition of the country was then so disturbed, however, that the authorities of the time wisely abandoned the idea of a census, which, if it were taken at all, would only have given misleading results. Since 1921 no favourable opportunity has occurred, but there seems to be no longer any reason for postponement.

BRITISH ORTHOPÆDIC ASSOCIATION: AN INTERNATIONAL MEETING.

THE meeting of the Association held at Leiden on May 24th was attended by 24 members from England and Ireland, and several Dutch visitors and one Austrian were present. The programme of scientific work was provided entirely by Dutch orthopædic surgeons and included the following short papers and discussions:—

Mr. Alvarez Correa: On Avulsion of the Axillary Nerve in Dislocation of the Shoulder.—On Multiple Enchondromata.
J. van Assen: Excision of the Obturator Nerve in Spastic Conditions.—Demonstration of an Orthopædic Operating Table.—Demonstration of an artificial leg.

W. F. Wassink: Demonstration of an instrument for directing Albee's peg in fracture of the femoral neck.—Reconstruction of the Socket-roof in the Hip-joint.
J. W. P. Fransen: On the Treatment of Neglected Congenital Dislocation of the Hip.

Murk Jansen: Demonstration of cases.—Clawfoot and its treatment.—Clubfoot in the Adult and its treatment.—Abdominal Pressure in the treatment of Deformities of the Spine.—Flattened Hip-socket and its Sequelæ.—Demonstration on how the plaster bed in side position is made.

Dr. Murk Jansen, of Leiden, met the members of the Association and arranged for their entertainment throughout the day. Most of them proceeded on the evening of May 24th to Amsterdam, where they attended the twenty-fifth anniversary meeting of the Dutch Orthopædic Association. This meeting was held under the presidency of Dr. Jansen and was of an international character. On May 25th the papers included one by Dr. Lorenz on an Operation for Untreated Congenital Dislocation of the Hip, by Sir Robert Jones on Orthopædic Experience During the War, by Dr. Calot on the Nature of Arthritis Deformans of the Hip, Dr. F. H. Albee on Bone Transplantation, Dr. Biesalski on the Physiological Treatment of Infantile Paralysis, Dr. Spitzky on the Surgery of the Joints, and Dr. Putti on Arthroplasty, in addition to eight papers by Dutch surgeons. On the morning of May 26th the meeting discussed the social care of cripples when the methods of organisation in the British Isles, Germany, Austria, America, and the Netherlands were described by representatives of these countries.

The British visitors were liberally entertained by their hosts in Holland. A largely attended dinner of the combined British and Dutch Associations was held at Amsterdam on May 25th, and on the following day the party was taken for a trip on the Zuyder Zee, visiting Marken and Vollandam. As the dam, which is to enclose a large section of the Zuyder Zee, will shortly be finished, this trip, which is very well known to visitors to Holland, will probably be impossible after the present year.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

R. R. Baker is entered as Surg. Lieut. for short service. Surg. Lieut.-Comdrs. to be Surg. Comdrs.: L. A. Moncrieff, A. C. Paterson, H. E. Scargill, and T. Cock.

Lt.-Col. P. H. Henderson, R.A.M.C., to be Asst. Director of Hygiene, vice Maj. and Bt. Lt.-Col. W. C. Smales.

ROYAL ARMY MEDICAL CORPS.

Maj. M. J. Cromie, half pay list, late R.A.M.C., retires on ret. pay on account of ill-health contracted on active service, and is granted the rank of Lt.-Col.

Maj. J. H. R. Winder to be Lt.-Col., to complete establt. Maj. and Bt. Lt.-Col. W. C. Smales relinquishes the temp. rank of Lt.-Col.

Maj. A. C. Osburn retires on ret. pay and is granted the rank of Lt.-Col.

The undermentioned Capts. retire, receiving a gratuity: H. H. Mulholland (granted the rank of Maj.) and M. McGee Russell.

Temp. Capt. C. K. O'Malley relinquishes his commn. and retains the rank of Capt.

TERRITORIAL ARMY.

General List: Capt. G. B. Tait, from 7th Bn., Middlesex Regt., to be Lt., and relinquishes the rank of Capt.

Capt. F. J. Lidderdale (late R.A.M.C.) to be Lt., and relinquishes the rank of Capt.

Capt. F. F. T. Hare and W. P. Moffet relinquish their commns. and retain the rank of Capt.

Capt. A. Wilson relinquishes his commn. and is granted the rank of Maj.

Capt. R. W. Aitken, having attained the age limit, is retired, and retains the rank of Capt.

INDIAN MEDICAL SERVICE.

Samuel Muffy to be temp. Lt.

The King has approved the retirement of Lt.-Cols. W. J. W. Brackenbury and W. Hesketh. Also of Capt. B. G. S. Clarke on account of ill-health.

Correspondence.

"Audi alteram partem."

DELAY IN GIVING DIPHTHERIA ANTITOXIN.

To the Editor of THE LANCET.

SIR,—Although the paramount importance of giving antitoxin in the early stage of the disease is well recognised by those who have seen much of diphtheria, there is evidence, unfortunately, that this fact is not so widely appreciated as it should be. A striking illustration is afforded by the experience obtained in one of the large metropolitan fever hospitals during the past year. Of 150 cases of diphtheria which proved fatal at this hospital during 1922, according to the report of the medical superintendent, no less than 46, or 30 per cent., died within 24 hours of admission, and 17 more, or 42 per cent., within 48 hours.

In view of the almost invariable success of antitoxin, if administered in the early stage of diphtheria, and the comparative harmlessness of the remedy, even should its use subsequently prove to have been unnecessary, this record must be regarded as nothing short of deplorable. In some instances the delay in securing a proper treatment is due to the failure of the patient's parents to call in a doctor, perhaps on account of expense, or, possibly, by reason of their not realising that he is ill. The general appearance of a diphtheria patient, especially in severe attacks, is occasionally very deceptive in the early stage, and even the medical attendant is apt to be misled, unless the throat be examined.

I am convinced, however, as the result of observations extending over many years of cases of diphtheria received into hospital, and a knowledge of the circumstances attending their removal, that the most frequent source of delay in treatment is the fatal practice of awaiting the result of bacteriological examination before deciding to give antitoxin, or sending the case into hospital. Hesitancy on the part of the practitioner to certify for removal before his diagnosis is confirmed is not unnatural, but the same objection does not apply to giving antitoxin. Until outside practitioners can be persuaded to administer serum on the mere suspicion of a case being one of diphtheria, the sad experience of patients being so frequently sent into hospital in a hopeless condition will continue to be a reproach to the profession.

It has been stated that a belief exists in the minds of a good many outside practitioners that the medical superintendents of the fever hospitals are averse to antitoxin being given to patients before they are sent into hospital. I do not know on what foundation this belief exists, if, indeed, it does exist, but I do know that the fact is quite to the contrary. Speaking on behalf of all my colleagues in the fever service, I am able to assert that if serum were to be given to every case of suspected diphtheria at the earliest possible moment before being sent into hospital, such action on the part of the certifying practitioner would be warmly welcomed. It is with the object of removing any misconception on this point which may exist that I venture to trouble you with this communication.—I am, Sir, yours faithfully,

F. FOORD CAIGER,

Chief Medical Officer, Infectious Hospitals Service,
Metropolitan Asylums Board.

London, S.W., June 1st, 1923.

IS DIABETES MELLITUS A PROGRESSIVE DISEASE?

To the Editor of THE LANCET.

SIR,—Prof. H. Maclean in the address published in your issue of May 26th states that "in human diabetes two factors are present: (1) An essentially progressive lesion absent in experimental animals;

and (2) the detrimental effect of improper diet." I doubt whether anyone who has studied diabetes mellitus will disagree with the second factor. There are some, amongst them the writer, who do not agree that diabetes is essentially progressive when the detrimental effect of an improper diet is removed. In some lectures delivered at the London Hospital I spoke of the conditions other than improper diet that lead to progress, several of which might awaken almost any obsolescent disease.¹

At the moment there are two camps: the belief in one is that correct diet will prevent progress of the disease; in the other, that however the diet be regulated the disease will progress. The first question which must be settled is this: Are the methods of regulating the diet adopted by the two camps identical? I do not know, and Prof. Maclean does not give me an opportunity of deciding. But I do know that it is not possible to find the correct diet by regulating it to prevent either glycosuria, or hyperglycæmia before meals. In my experience the diet which prevents the blood-sugar rising at any time above 0.15 per cent. arrests the disease, except in the conditions referred to above.

These two views were of considerable importance before the advent of insulin; now it is essential that crucial experiments be carried out to decide which is correct. If diabetes mellitus be essentially a progressive disease, comparatively little will be gained by correlating dose of insulin and diet to prevent hyperglycæmia, for in any case the pancreas will gradually deteriorate. On the other hand, if sugar in the blood be the stimulus to activity for the pancreas and overwork is the cause of the deterioration, then the diet and dose should be fixed to prevent hyperglycæmia at any time.

I am, Sir, yours faithfully,

Portland-place, W., May 29th, 1923.

O. LEYTON.

IS INFANTILE DEATH-RATE SELECTIVE?

To the Editor of THE LANCET.

SIR,—I have just read your leading article of March 17th with the above title, and I have also re-read Chapter XVI. of Prof. Raymond Pearl's monograph from which you quote, and I am still of the opinion that he justifies what you call his "dogmatic" statement. Your criticism is based on two arguments: (1) That partial correlation coefficients are not reliable, and (2) that there are wide differences of infantile mortality in differing districts which must be ascribed to differences of environment. I am surprised that no statistician has written in defence of partial correlation coefficients (having due regard to probable error and the possibility of spurious correlation), and I will not pretend to the necessary mathematical knowledge to do so myself. But the second argument appears to me to miss the mark.

Take a hypothetical case. Suppose two batches of ten boys of exactly similar hereditary constitution. One batch is sent to a school where no epidemic occurs, the other to a school where there is a severe epidemic of diphtheria. The first batch all survive, but six of the second get diphtheria, and two die. Now, the facts that there is a markedly different death-rate between the batches and that proper precautions might have prevented that epidemic of diphtheria, have surely nothing to do with the question whether or no the diphtheria acted selectively upon the six who were taken ill!

However, though Prof. Pearl is happy that truth should be vindicated, there is no reason why welfare workers need be unhappy about it. They may certainly be preserving lives which are destined to be below the average in duration, but not necessarily in value. As a race we have no ground for fearing that their efforts will do us harm; our expectation of life is all the time forming a more and more satisfactory curve from the sociologist's point of view.

¹ Brit. Med. Jour., April 28th, 1923.

Let the welfare worker reflect that it is worth while to preserve short lives like that of R. L. Stevenson even though we boast fewer picturesque but toothless centenarians as a result.

And I daresay Prof. Pearl would think so too.

I am, Sir, yours faithfully,

Saranac Lake, N.Y., U.S.A., May 14th. J. ROSSLYN EARP.

PRACTITIONERS AND COLLOID MEDICATION.

To the Editor of THE LANCET.

SIR,—As one, at all events, who requested you to publish the special articles now called "Modern Technique in Treatment," I beg to offer my hearty expression of appreciation of these articles. May I make a further suggestion for your consideration. We general practitioners are almost daily bombarded with literature as to colloid therapeutic measures—often fortified by statements of not altogether disinterested knights in the profession. Organotherapy is also thrust upon us with reiteration. If some

credible authority could give us information as to whether these colloids are really colloids and of any value at all, and also as to whether endocrinology is anything more than a fee-catching bait of the Harley-street specialist, it would help to dissipate the fog of charlatanism that unceasingly enshrouds us. Thanking you for past favours.—I am, Sir, yours faithfully,
Charing, Kent, June 1st, 1923. H. E. LITTLEDALE.

*** Sir William Bayliss dealt with the first of the two subjects in a special article published in THE LANCET last year (1922, i., 38). A full report of a recent discussion at the Section of Pharmacology and Therapeutics of the Royal Society of Medicine, and a leading article in the next issue (1923, i., 130 and 191) serve to distinguish the scientific investigations into the important subject of endocrinology from the attempts—sometimes too hasty—to find a practical application of these in organotherapy. We agree with our correspondent that these are subjects which might well be referred to, and which, indeed, call for further ventilation.—ED. L.

Obituary.

JOHN CHIENE, M.D., F.R.C.S., F.R.S. EDIN.,
D.Sc. SHEFF., LL.D. EDIN. & GLASG.,
EMERITUS PROFESSOR OF SURGERY IN THE UNIVERSITY
OF EDINBURGH.

THE death of Prof. Chiene on May 29th at an advanced age removes a surgeon who had played a great and worthy part in the Edinburgh school. John Chiene was born on Feb. 25th, 1843, the fifth son of George Todd Chiene, of Edinburgh. He studied medicine at Edinburgh and Paris, graduating M.D. Edin. and taking the F.R.C.S. Edin. two years later. In 1869, when Lister was appointed professor of clinical surgery, Chiene, who had previously been senior demonstrator of anatomy, was on the junior surgical staff of the Royal Infirmary and was one of his first and most loyal supporters. In 1882 Chiene became himself professor of systematic surgery, a post which he held for 27 years. When the South African War broke out Chiene was appointed consulting surgeon to the Field Force; he was mentioned in despatches, awarded the medal, and gained a C.B. Edinburgh and Glasgow Universities honoured him with the LL.D., Sheffield with the D.Sc., the surgical associations of America, Paris, and Finland made him an honorary member, and he presided at different times over the Royal Medical Society and the Royal College of Surgeons of Edinburgh.

In order to appreciate fully the important part which Chiene played in the development of the Edinburgh School of Medicine, it is necessary to realise how well he was qualified by education and temperament for assisting in the great revolution in surgical practice which was brought about by Lister. As a student Chiene was fortunate in having had as his teachers some of the foremost men of their day at a time when the Edinburgh school was very strong. Syme had taught him, on the one hand, the importance of realising the general principles which underlie any practical method, and, on the other hand, the value of simplicity in the manner of carrying out that method. From Goodsir he had imbibed a deep interest in anatomy, not merely from a practical, but also from a philosophical point of view. As a demonstrator in the dissecting room, under Goodsir, he had learned to teach directly from nature and to demonstrate his facts clearly. The professor of physiology (Hughes Bennet) had impressed him with the need for following in the van of advancing science in its application to practical medicine and surgery. With such a training Chiene readily fell under the spell of Lister's genius when he succeeded Syme in the chair of clinical surgery. At that time the antiseptic system of surgery, recently inaugurated in Glasgow, was fighting an uphill battle for recognition. The older surgeons in Edinburgh, as in other places, could see nothing of any value in

Lister's "new-fangled ways" of treating wounds, and if a few tried carbolic acid as a new kind of lotion, it was without appreciation of the all-important principle of organismal infection. Chiene was then an assistant surgeon in the Royal Infirmary and an extra-mural lecturer on surgery with an increasing popularity. He had many opportunities of influencing the minds of the undergraduates, and he did so to good purpose.

After Lister's removal to London and his own appointment, in succession to Spence, to the chair of systematic surgery, Chiene was still as ardent a follower of Lister as before, and was ready to develop new methods of teaching in the increased scope which the professorial chair provided. He opened a research laboratory—the first of its kind—in connexion with his department, and in addition to his success as a teacher he attracted students to the University by the fame of his classes in operative and practical surgery. He was, withal, a cautious and safe operator, careful of the interests of his patient. In the lecture room he laid stress on broad principles, explained them, when possible, by diagrams on the blackboard, and drove them home by simple illustrations which were telling and easily remembered. At this time he published his two books on surgical anatomy and operative principles. His style was natural and direct and embodied the advice given by Ruskin to authors in the following extract which Chiene was fond of quoting. "Certainly it is excellent discipline for an author to feel that he must say all that he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way, and we want downright facts at present more than anything else."

In the classroom, in the hospital, and elsewhere, Prof. Chiene was essentially an approachable man, ready to listen to students' difficulties, to explain them when he could, receptive of new ideas. He supported the athletic club and encouraged its members by his presence on the playing fields and at the annual sports. In all these ways he was a true friend to the school and his personality and teaching will be remembered with gratitude and affection by old students in all parts of the British Empire.

Prof. Chiene married in 1869 Elizabeth Mary, daughter of David Lyall, of Calcutta, by whom he had a daughter and two sons; one of the latter followed in his father's steps and is now lecturer on clinical surgery in Edinburgh University.

HENRY TROUTBECK, M.B., B.Ch. CAMB.

Dr. Troutbeck, medical officer to the Western Dispensary, Westminster, and to Westminster School, died suddenly on June 3rd at his residence in Ashley-gardens, London, S.W., of angina pectoris. He diagnosed his own condition in his last moments with extraordinary fortitude, pointing out that a post-

mortem inquiry would be needless. The second son of Dr. John Troutbeck, chaplain in ordinary to Queen Victoria and precentor of Westminster Abbey, he took the second place in the Natural Science Tripos at Cambridge in 1886. His clinical studies were taken at St. Bartholomew's Hospital, where, after qualifying in 1892, he held house appointments, and at the East London Hospital for Children at Shadwell. While at Cambridge he was a junior demonstrator in physiology. Dr. Troutbeck was well known in Westminster, where he was esteemed by all classes and especially by the poor, to whom his services were freely given. Last year he stood for the city council of Westminster and headed the poll.

ROBERT JOHN EWART, M.D., M.Sc. VICT.,
F.R.C.S. ENG., D.Sc. LOND., D.P.H.

WE regret to announce the death of Dr. Robert J. Ewart, medical officer of health for Barking, following an operation at the West Ham Hospital. He was in his forty-seventh year, having been born in Liverpool, the son of Edmund Brown Ewart, B.A., and educated at Liverpool Institute and University. As a student he won a number of distinctions, being Holt Tutorial Scholar and Junior Lyon Jones Scholar, becoming later Holt Fellow of Pathology in the University. After holding a resident appointment at the Liverpool Royal Infirmary and obtaining his F.R.C.S. Eng., he

gained his public health experience at Ashton-under-Lyne, going on to Middlesbrough as assistant M.O.H. and school medical officer. After appointment as medical officer of health to the Urban District of Barking he showed himself a very active and diligent public health officer, interested both in the preventive and epidemiological side of his work, with a philosophical bias which produced such essays as "Time and the Second Generation" and "Parental Age and Offspring." He was the author of a series of valuable papers dealing with the statistics of scarlet fever and diphtheria, which appeared in the *Journal of Hygiene*. His latest work on the Economics of Tuberculosis, presented early this year to the Royal Society of Medicine, was an excellent example of the capacity for condensing a wealth of statistical research into a small compass.

Dr. Ewart lost no opportunity of dwelling upon the importance of the food of the people to the public health, and saw in disease a pathological reaction due to faulty metabolism. No subject was too difficult for him to tackle, and even with imperfect data his originality of mind was able to elucidate the problems before him. Essentially unselfish, he possessed the true spirit of research, and his friends remember gratefully his willingness to share any information he possessed, even though he might not yet have published it himself. To the public health service his loss is a considerable one, for much was hoped from him.

Medical News.

UNIVERSITY OF LONDON: *Thomas Smythe Hughes Medical Research Fund*.—The Senate will proceed shortly to consider applications for grants from this Fund, which are allocated annually for the purpose of assisting original medical research. Applications must be received not later than June 15th, and must be accompanied by the names and addresses of not more than two persons to whom reference may be made. Further particulars may be obtained from the Academic Registrar.

At examinations held recently the following candidates were successful:—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Honours.—Una Christina Garvin (c) and Winifred M. Gray (d), Lond. Sch. of Med. for Women; Dulcie H. Lukis (a, c), Lond. Sch. of Med. for Women and St. Mary's Hosp.; and David H. Patey (d, e, University Med.), Middlesex Hosp.

(a) Distinguished in Medicine.

(c) Distinguished in Forensic Medicine.

(d) Distinguished in Surgery. (e) Distinguished in Midwifery.

Pass.—Elsa V. Adams, London Sch. of Med. for Women; Sarah E. Andrews, Westminster Hosp.; Ormonde A. Baker and John C. Blake, Univ. Coll. Hosp.; Gladys L. Buckley, London Sch. of Med. for Women; Khorshed Sorabji Captain, Grant Med. Coll. and London Sch. of Med. for Women; Gertrude B. G. Carden and Eva D. Cook, London Sch. of Med. for Women; Daryll C. Corry and Eleanor M. Creak, Univ. Coll. Hosp.; Avabai Jhangirji Dodhi, London Sch. of Med. for Women; Alfred H. G. Down, Univ. Coll. Hosp.; Helen W. Duncan, Univ. of Liverpool; Vivian Feldman, Univ. Coll. Hosp.; Ronald K. Ford, London Hosp.; Christine P. Francis, King's Coll. Hosp.; Arthur J. Gardham, Univ. Coll. Hosp.; Percy C. C. Garnham, St. Bart's Hosp.; Frank A. Gaydon, St. Thomas's Hosp.; Gerald N. Golden, London Hosp.; Evelyn E. Gourlay, London Sch. of Med. for Women; Edward E. D. Gray, Guy's Hosp.; Gwenvron M. Griffiths, London Sch. of Med. for Women; Charles F. Harris, St. Bart's Hosp.; Marjorie F. Hayward, Evelyn N. Heather, and Nancy M. Ifield, London Sch. of Med. for Women; Edgar G. Housden, St. Thomas's Hosp.; Gilbert H. Howells, Univ. Coll., Cardiff, and St. Thomas's Hosp.; Dorothy M. Howgate, Margaret G. Jones, Kathleen H. B. King, and Edna I. Langston, London Sch. of Med. for Women; Basil L. Laver and Ernest A. Levisour, Guy's Hosp.; James L. Livingstone, King's Coll. Hosp.; William E. Lloyd, St. Bart's Hosp.; Barbara V. Lucas, London Sch. of Med. for Women; Alison N. Macbeth-Morland, Univ. Coll. Hosp.; Alan C. Maconie, St. Bart's Hosp.; Norman S. Macpherson, St. Thomas's Hosp.; Rupert A. Madgwick, London Hosp.; Phyllis M. Manson, Edith T. Marshall, and Mary Michael, London Sch. of Med. for Women; John B. G. Muir, Middlesex Hosp.; Ruth N. Parker-Gray, London Sch. of Med. for Women; Gulbai Pirojsha Patel, Grant Med. Coll. and London Sch. of Med. for Women; Enid M. Powell, Charing Cross Hosp.; Muriel Rawlinson, London Sch. of Med. for Women; Dorothy S. Russell, London Hosp.; Emily V. Saunders-Jacobs and Cyril D. Shapland, Univ. Coll. Hosp.; Francis G. A. Smyth, St. Bart's Hosp.; Emma M. Store, London Sch. of Med. for Women; Richard O. Swaine, Middlesex Hosp.; Alexander Walk and William R. Ward, St. Bart's Hosp.; Cicely Weatherall, London Sch. of Med. for Women; and Hubert N. Williams, Univ. Coll. Hosp.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—B. Basuny, Middlesex Hosp.; W. A. Drake, Leeds; E. W. Hicks, St. Thomas's Hosp.; L. K. Htoe (Sect. I.), London Hosp.; W. J. Jameson, Albany Med. Coll., U.S.A.; C. S. Laurence, Sydney and Bristol; and J. Totton, Guy's Hosp.

Medicine.—B. Basuny (Sect. II.), Middlesex Hosp.; A. J. Dowek, Manchester; A. Gullertein, London Hosp.; and M. Hawke and J. Totton, Guy's Hosp.

Forensic Medicine.—W. A. Drake, Leeds; O. Sinanides, Athens; M. A. E. Somers, Bristol; and B. Zeitoun, King's Coll. Hosp.

Midwifery.—W. J. Jameson, Albany Med. Coll., U.S.A.; W. R. H. Pooler, Cambridge and St. Mary's Hosp.; and A. Vasudev and H. Whitby, London Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: B. Basuny, M. Hawke, W. J. Jameson, C. S. Laurence, J. Totton, and A. Vasudev.

DINNER TO SIR HENRY GRAY.—On the occasion of his leaving Aberdeen, to become chief of the surgical staff of the Royal Victoria Hospital, Montreal, a complimentary dinner is to be given to Sir H. M. W. Gray by his medical friends on June 27th, at 7.15 P.M., in the Palace Hotel, Aberdeen. The secretary of the committee in charge of the arrangements is Mr. W. Anderson, 5, Albyn-terrace, Aberdeen.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Under the auspices of the Fellowship of Medicine the Prince of Wales's General Hospital (N.E. London Post-Graduate College), Tottenham, will hold a two weeks' refresher course from June 11th to 23rd. The course will include demonstrations at affiliated hospitals and a clinical lecture daily at 4.30 P.M. At the "Children's Clinic," Western General Dispensary, Edgware-road, a course of eight lectures on Gastro-intestinal Diseases of Children will be given by Sir William Bayliss, Dr. Bernard Myers, and Mr. E. T. C. Milligan on Mondays and Thursdays at 5 P.M., beginning on Monday, June 11th. Other special courses during June will include one in Neurology at the West End Hospital for Nervous Diseases from June 25th to July 20th, a course in Ophthalmology at the Royal London Ophthalmic Hospital, and in Dermatology at St. John's Hospital for Diseases of the Skin, both beginning on Monday, June 11th. These courses will consist of lectures and clinical demonstrations each day in the wards and out-patient departments. The programme for July will include a two weeks' refresher course at the Royal Northern Hospital in conjunction with the Central London Ophthalmic Hospital and the Royal Chest Hospital from July 2nd to 14th, a fortnight's intensive course in Cardiology at the National Hospital for Diseases of the Heart, beginning on Monday, July 2nd, and a course on Dermatology at the Hospital for Diseases of the Skin, Blackfriars, from July 16th to 28th. For particulars application should be made to the Secretary, Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

CHILD-STUDY SOCIETY.—A visit to Lord Mayor Treloar Cripples' Hospital and College, Alton, Hants, will be paid on Saturday, July 7th, when Sir Henry Gauvain will conduct the members over the hospital.

FEDERATION OF MEDICAL AND ALLIED SERVICES.—The report of the Executive Council of this body was presented at the annual general meeting of the members held on May 29th, at its offices, 12, Stratford-place, London, W. The report, which was adopted unanimously, showed considerable progress during the year, notably a valuable extension of work has been undertaken by coöperation with commercial and industrial firms, where the success has been largely due to Lord Islington and Sir Robert Kindersley. Among organisations accepting the services offered by the Federation and subscribing to its funds are the Prudential Assurance Co., the Royal Exchange Assurance, the Legal and General Assurance Society, the National Amalgamated Approved Society, the Liverpool Victoria Friendly Society, the National Federation of Employees Approved Societies, the Joint Committee of Approved Societies, the National Insurance Benefit Society, Messrs. Vickers, Ltd., Messrs. Debenham, Ltd., Messrs. Lever Bros., Ltd., Messrs. Oxo, Ltd., Messrs. Nestlé, Ltd., the Eastern Telegraph Co., the South Metropolitan Gas Co., the Gas Light and Coke Co., and Messrs. Shanks and Co. In order to deal promptly with the questions submitted by industry, the resources of the Federation have been augmented by an influential panel of specialists. A conference was held during the year on hospital finance, at which a representative gathering heard a discussion on many aspects of this difficult question from persons with special knowledge. The question of cancer research being taken up at a meeting of the Council, a resolution was carried unanimously calling upon the Government to allocate a large sum of money to cancer research, in view of the increasing mortality from this disease. The report states that this movement has resulted in the starting of the Empire campaign in which the British Red Cross Society has given invaluable assistance.

The income of the Federation for the first time showed a marked increase. Certain offices in the Federation, which were left vacant at the last annual meeting, have been fortunately filled by the securing of the assistance of Viscount Astor, Lord Islington, and Viscount Leverhulme as vice-presidents, with Sir Malcolm Morris who was elected last year; and Sir Robert Kindersley, a director of the Bank of England, as joint treasurer. Sir Berkeley Moynihan was unanimously re-elected President for the ensuing year, and Viscount Astor, Viscount Leverhulme, Lord Islington, and Sir Malcolm Morris were re-elected vice-presidents.

CONFERENCE ON INFANT WELFARE.—This conference will be held under the auspices of the National Association for the Prevention of Infant Mortality and National Baby Week Council at Carnegie House, 117, Piccadilly, London, W., on July 2nd, 3rd, and 4th. On the 2nd, at 10.30 A.M., Mr. Neville Chamberlain will give a presidential address, after which Mr. Eardley Holland, Dr. J. S. Fairbairn, Dr. Eric Pritchard, and Dr. R. C. Jewesbury will open a debate on the Causal Factors of Infant Mortality up to one year of age (ante-natal, intra-natal and post-natal) and their Prevention. At 2.30 P.M. a discussion on Maternity Homes and their relation to Maternal Mortality from Childbirth will be opened by Dr. W. Allen Daley. At 5 P.M. a meeting of the General Council of the Association of Infant Welfare and Maternity Centres will be held. On the 3rd, at 10.30 A.M., Dr. W. G. Willoughby and Dr. Mabel Brodie will open a debate on the Scope, Staffing, and Administration of Maternity and Child Welfare Centres, and at 2.30 P.M. Dr. E. W. Hope and Dr. F. E. Wynne will open a discussion on Is it Advisable in Urban Areas to Combine the Functions of the Health Visitor with those of other Officers of Local Authorities? The section of Maternity and Child Welfare Medical Officers of the Society of Medical Officers of Health will hold their annual general meeting at 5 P.M. On the 4th, at 10.30 A.M., Dr. Rhoda Adamson will open a discussion on the Maternity Resolution passed by the Washington Convention, 1919, and at 4.30 P.M. a discussion on Housing in relation to Infant Welfare will be opened by Miss M. M. Jeffery and Miss S. M. Bushell. For the benefit of all classes of infant welfare workers, six lectures will be given every evening during the conference, from 7 to 8 and from 8 to 9 P.M. These will include lectures on the Preservation of the Teeth, by Dr. C. E. Wallis; An Account of some Special Work in Huddersfield for the Reduction of Infant Mortality, by Dr. S. G. Moore; and the Prevention of Blindness in Young Children, by Mr. Bishop Harman. Arrangements will be made for conducted tours by motor, free of charge, to a considerable number of typical maternity and child welfare institutions of various kinds in London. Further particulars may be obtained from the hon. sec., Miss J. Halford, at 117, Piccadilly, London, W. 1.

Parliamentary Intelligence.

HOUSE OF LORDS.

WEDNESDAY, MAY 30TH.

Mental Treatment Bill.

THE House went into Committee on the Mental Treatment Bill, the Earl of DONOUGHMORE, Chairman of Committees, in the chair.

On Clause 2, which deals with the extension of powers of visiting committees,

Earl RUSSELL moved an amendment to give power to visiting committees to pay, if necessary, for the medical certificates that were required for recommendation for treatment. He had been asked to move this amendment on behalf of the London County Council. It was not desired that the committees should pay in all cases, but only where the persons themselves were unable to do so.

The Earl of ONSLOW said that with regard to the payment of expenses for securing a recommendation for treatment by two medical practitioners he should like to have an opportunity of considering it in conjunction with the noble lord, and perhaps they might then devise an amendment to Clause 7 which would cover this point and also the question of expenses incurred in conveying patients to and from institutions.

Earl RUSSELL said that he recognised that time was required to consider the matter.

The amendment was withdrawn.

The Earl of ONSLOW moved to omit from paragraph (5) of Clause 2, which deals with the power of visiting committees to undertake research in relation to mental disorder, the words "subject to and in accordance with a scheme to be approved by the Board of Control." He said that the London County Council had pointed out that this might be impracticable and that it was undesirable to submit an absolutely cut-and-dried scheme in regard to research work.

The amendment was agreed to.

On Clause 4, which deals with the temporary treatment of mental disorder without certification,

Lord PHILLMORE moved an amendment to provide that the consent of parent or guardian should only be valid as a substitute for the voluntary submission of the patient to enter an approved institution in the case of minors under the age of 16 years. He said that it seemed to him that in the case of people nearly grown up, boys and girls of 17 and 18 years of age, it was very undesirable that the machinery of the Bill should be used to enable a father or guardian to compel their admission into one of these institutions and keep them there until they came of age or until the father or guardian was pleased to allow them to come out. The law with regard to minors did not in its general principle authorise such constraint. Further, he would point out that marriage had always been considered as an emancipation; but under this Bill as it now stood a married woman of 18, 19, or 20 might, notwithstanding that her husband did not wish it and she did not wish it, be placed by the father in one of these institutions until the age of 21. He was sure that that could not have been the intention of the framers of the Bill. He understood that the only difference between him and the noble earl who represented the Government was that he (Lord ONSLOW) was rather doubtful whether 16 was not too young and whether it should not be 17 or 18.

The Earl of ONSLOW said that while the Government would not be averse from accepting the principle of the amendment they felt that 16 was a rather too early age at which to give this power, especially in view of the possible state of health of the person affected. They preferred the age of 18, but if the noble lord would withdraw the amendment the point might be considered again before the Report stage.

Lord PHILLMORE agreed, and the amendment was withdrawn.

On Clause 5, which deals with the discharge of persons detained in institutions under the Act,

Earl RUSSELL moved an amendment to provide that any person received as a boarder or patient in any institution might leave at any time upon giving the medical superintendent or other person in charge three days' notice instead of 48 hours as proposed by the Bill. He said he had been asked to move the amendment by those who were interested in administration, and who felt that 48 hours was very much on the short side. If such notice were given on Saturday at about midday it might be impossible to communicate with the patient's friends. Unless this amendment were accepted some patient might be discharged on a Monday morning without there being anyone to receive him, and, as one very experienced alienist wrote to him (Lord Russell), might be cut up on the railway line a few hours later.

The Earl of ONSLOW said he was impressed with the argument of the noble earl and he would accept the amendment.

if he would alter the period from "three days" to "seventy-two hours."

The amendment to substitute "seventy-two hours" for "forty-eight hours" was agreed to.

On Clause 8, which deals with the application of the Bill to London,

The Earl of ONSLOW moved an amendment to preserve the separate jurisdiction of the Corporation of London under the Act.

The amendment was agreed to.

The Earl of ONSLOW moved after Clause 8 to insert the following new clause: "Asylums provided by any public authority in England or Wales for lunatics or other persons of unsound mind shall hereafter be called mental hospitals, and accordingly for references in any public or local Act or in any Order, regulations, or other document issued under any such Act to any such asylum shall be substituted references to a mental hospital." He said that hitherto mental institutions had been described as asylums, and the word "asylum" had been associated with mental deficiency, and perhaps had contributed to the view that it was less a disease than an irremediable affliction. Nurses in mental institutions, alienists, and the Board of Control were anxious that this change of name should be adopted.

The amendment was agreed to.

The Committee stage was concluded, and the Bill as amended was reported to the House.

HOUSE OF COMMONS.

WEDNESDAY, MAY 30TH.

Tuberculous Milk.

Mr. ADAMS asked the Minister of Health whether he was aware that the corporation of Newcastle-upon-Tyne, in their weekly examinations for tuberculosis in samples of milk sold for consumption in that city, found that the highest proportion of positive samples was 10.4 per cent. in 1912, and that during the period of cattle shortage and general control by the Government of slaughtering it fell steadily to 3.6 per cent. in 1919, but that since that year it had risen again, and by 1922 stood at the relatively high figure of 7 per cent.; and whether, in view of the fact that tuberculous milk is one of the prime sources of the disease of tuberculosis in the population, he would take or propose measures for more efficiently dealing with herds in rural areas by transferring the duties in connexion therewith from the small local authorities to combinations of these or to county councils.—Mr. NEVILLE CHAMBERLAIN replied: I understand that the facts are as stated. The duty of taking measures to prevent the sale of tuberculous milk was placed on county and county borough councils by the Milk and Dairies (Consolidation) Act, 1915, but the commencement of that Act has been postponed till Sept. 1st, 1925, by the Milk and Dairies (Amendment) Act, 1922. I may, however, remind the hon. Member that Section 11 of the Act of 1922 provides for the transfer to the county council of the powers and duties of a district council under the Act or any other enactments, orders, or regulations relating to milk and dairies, if the county council resolve that the district council have failed to exercise or perform any of those powers or duties and make complaints thereof to my department.

Agricultural Workers and Health Insurance.

Mr. SHEPPERSON asked the Minister of Health whether there were available data illustrating the average annual value of benefits received per worker among agricultural workers under the National Health Insurance scheme; and how this compared with the corresponding figure for workers in urban industries.—Mr. NEVILLE CHAMBERLAIN replied: As agricultural workers are distributed amongst many thousand approved societies and branches which are not, in general, organised on an occupational basis, it is impossible to give figures as to the annual value of benefits received by such workers throughout the country. An analysis of the figures of certain societies whose membership consists largely of agricultural workers shows a claims experience from 5 to 10 per cent. more favourable than that of societies generally, with the result that such societies have been placed in a position to provide their members with exceptionally favourable additional benefits.

Panel Practitioners' Remuneration.

Sir KINGSLEY WOOD asked the Minister of Health whether any conferences had recently taken place between representatives of the doctors on the panel list and his own department; whether any alteration in the terms of the panel service had been discussed; and whether it was proposed to revise the remuneration now being paid in respect of such service.—Mr. GILBERT asked the Minister of Health what was the present payment made to doctors under the Health Insurance Acts; whether any negotiations were proceeding with the doctors for the purpose of reducing the amount now paid annually per patient; what the proposed reduction amounted to; and if he could make any statement on the

subject.—Mr. NEVILLE CHAMBERLAIN replied: A conference has been held with the Insurance Acts Committee of the British Medical Association to consider certain modifications in the terms of service of insurance practitioners, but no discussion has yet taken place in regard to the rate of remuneration after the expiry of the present agreement, which fixes the rate at 9s. 6d., exclusive of payments in respect of drugs and mileage to rural practitioners.

Sir KINGSLEY WOOD: When this conference has taken place will the right hon. gentleman take steps to see that so far as it is possible to do so the panel service is improved, having regard to the very many objections and complaints that are coming from all parts of the country at the present time.—Mr. CHAMBERLAIN: Yes, Sir, that has been the subject of consideration.

Small-pox.

Mr. BECKER asked the Minister of Health the number of people who had died this year up to April 30th with small-pox; and, if any, what percentage of these were vaccinated and what percentage were unvaccinated.—Mr. NEVILLE CHAMBERLAIN replied: No deaths have so far been registered this year as due to small-pox.

Defence Forces: Coördination of Medical Services.

Replying to Captain WEDGWOOD BENN, Mr. GWYNNE (Financial Secretary to the War Office) said that the decisions of the Government in regard to the recommendations of the Committee on the Coördination of the Technical Services of the Navy, Army, and Air Force, so far as they affected the Medical Services, were as follows: (a) A joint committee consisting of the heads of the medical departments of the Navy, Army, Air Force, and Ministry of Pensions, together with such other persons as may be nominated by those departments, should be established to discuss matters affecting the Medical Services of the four departments. (b) The terms of reference of the committee should be to advise upon (1) important questions of medical policy such as the construction of new hospitals; (2) the provision of facilities for common training; (3) specifications for the supply of medical stores and appliances; (4) the use of Army, Navy, and Air Force hospitals for the accommodation of disabled war pensioners; and (5) all matters in respect of which economies might be effected by the coöperation of the four departments. A technical Coördinating Committee should be set up to meet at definite intervals to deal with medical and veterinary stores. Subcommittees should be appointed to conduct detailed investigations with regard to particular items of supply. The terms of reference should be to consider (1) the adoption wherever possible of trade standards and patterns for commodities and stores common to and in use by the three Services; (2) the standardisation wherever practicable of the specification and design of commodities and stores common to and in use by the three Services for which a trade pattern was unsuitable; and (3) the coördination of the methods and procedure of inspection. The Coördinating Committee should be composed of one or more representatives from each Service who should be technical officers of rank and experience and with a knowledge of Service practice.

THURSDAY, MAY 31ST.

Medical Treatment of School-Children.

The House went into Committee on a Vote of £25,934,047 for the salaries and expenses of the Board of Education and the various establishments connected therewith including sundry grants-in-aid, Mr. J. F. HOPE, Chairman of Committees, in the chair.

Mr. E. WOOD (President of the Board of Education) in explaining the Vote referred to the question of the physical well-being of school-children. He thought it was true to say that the value of the School Medical Service was being increasingly realised by all concerned—the taxpayers, the ratepayers, the parents, the teachers, and the authorities. The total cost for the results which they got was, he thought, not excessive, working out at 4s. 4d. per child on average attendance. He had made it his business to inquire of those who had opportunities of judging, such as the Board's medical officers, school teachers, members of after-care committees, and so on, as to the effect, if any, of the prolonged trade depression on the physique of the children, and he had been, he confessed, much relieved to learn from them that they did not think that the trade depression had adversely affected the condition of the children. The school medical officer for Hull reported that in spite of the depression children were taller and heavier in the several age-groups and fewer children were reported by the teachers as mentally backward than in any year since the armistice. For blind, deaf, and physically and mentally defective children provision could only properly be made through the medium of the special school. The attitude of the Board towards that question had excited a certain amount of anxious and legitimate concern, and he assured the Committee that he was as alive to the reactions of the problem as any Member of the House. The dominant reason why

there was a large number of children in this category for whom no provision was made was that the existing provision was so expensive that it had not been possible to develop it as they would wish. It was only by reducing the cost of these special schools to as low a figure as was compatible with efficiency that they could hope to make a substantial inroad into the great blocks of children at present being denied the benefits to which they were entitled. With that object he had directed that a review should be made into the standard of staffing and in other directions to see whether they could get comparatively the same efficiency at a slightly less cost.

Mr. MORGAN JONES, in moving the reduction of the Vote by £100, said the figures with regard to defective children were staggering. There were something like 10,000 mentally defective children in the schools, and there were, it was estimated, 2500 mentally defective children in no schools at all. There were 74,000 physically defective children in the schools and 14,000 in no schools at all. Any attempt to arrest the development of these special schools for cases of this specially deplorable type would have the most disastrous consequences for the community as a whole, and would only involve further provision of a more expensive kind at a later date.

After further discussion progress was reported.

Drunkenness Due to Methylated Spirit.

Mr. RHYS DAVIES asked the Secretary of State for the Home Department how many cases of drunkenness due to drinking methylated spirit had been reported during the past year; what proportion of these cases were amongst women; whether the figures indicated an increase in the habit of drinking methylated spirit on the part of women; what steps he was taking, or proposing to take, to stop this practice, either by increasing the difficulty of procuring methylated spirits, or by the addition of some other ingredient which would more effectually prevent its use for this purpose.—Mr. BRIDGEMAN replied: The number of cases in England and Wales in the year 1922 in which the condition of the person convicted of drunkenness is reported to have been due to the drinking of methylated spirits is 516—250 males and 266 females. These figures are higher for both males and females than similar figures for the previous two years, and the greater rate of increase is shown by the males. The figures have been collected for only three years yet, and some part of the increase may be due to improvement in reporting. I am watching the matter carefully, but at present I have nothing to add as regards the possibility of further preventive measures to the answer I gave on March 14th.

Panel Practitioners' Records.

Dr. WATTS asked the Minister of Health if he was aware that under their present agreements panel doctors were compelled to keep records of their attendances and of illnesses of their patients, which involved a great amount of clerical work and took up much time which might be occupied in examining their cases; and would he, in framing the new terms of service, abolish these records.—Lord E. PERCY replied: My right hon. friend cannot accept the suggestion implied in the hon. Member's question that the keeping of the prescribed simple form of record need interfere in any way with the proper examination of patients, and he is not prepared to assent to the abolition of the record card.

Sale of Machine-skimmed Milk.

Mr. LAMB asked the Minister of Health whether his attention had been directed to an advertisement of Milkal, household milk, which was described as machine-skimmed milk from which only the water had been eliminated; and whether, in view of the implied suggestion that only the water had been eliminated and not the butter-fat, he would say what action he proposed to take for the protection of the consumer who might not be aware of what was actually removed by the process of machine skimming.—Lord E. PERCY replied: Yes, Sir, my right hon. friend's attention has been drawn to the advertisement in question and he agrees that it is likely to mislead readers as to the nature of the article advertised. He has no power to take action with regard to such advertisements, but he is considering regulations to provide for the proper labelling of dried milks.

FRIDAY, JUNE 1ST.

Medical Women and Board of Control.

Sir ROBERT NEWMAN asked the Minister of Health how many medical men and how many medical women were commissioners of the Board of Control; and how many medical men and how many medical women held the position of inspector under the Board of Control.—Mr. NEVILLE CHAMBERLAIN replied: There are four medical men who are commissioners of the Board of Control and two medical men inspectors; there are no medical women either as commissioners or inspectors.

MONDAY, JUNE 4TH.

Choice of a Panel Doctor.

Mr. SNOWDEN asked the Minister of Health what was the total sum paid out in each of the last three completed years under the National Health Insurance scheme by societies for members who had not selected panel doctors; and by what amount the panel doctors had benefited each year over and above the fees agreed upon through the action of those who had not selected a panel doctor.—Lord E. PERCY replied: The hon. Member is under some misapprehension. The right to medical attendance is not affected by the insured person's previous neglect to choose a doctor. Insured persons not infrequently put off selecting a doctor until they become ill, but they have a right to treatment immediately they are in need of it, irrespective of whether they are at the time on any doctor's list. The panel practitioners, therefore, are collectively at risk in respect of all insured persons entitled to medical benefit. The actual number of unassigned persons, which cannot be precisely calculated, is roughly 700,000, but the proportion of these who do not avail themselves of their right to treatment when they need it is a relatively small and diminishing number. My right hon. friend has no information as to the distribution of unassigned persons between different societies.

Cancer Research.

Mr. ALFRED T. DAVIES asked the Minister of Health whether it was intended to grant further financial and expert aid towards research in connexion with the ravages of cancer; and what assistance was now given to such research.—Lord E. PERCY replied: Financial assistance is at present given from public funds to cancer research through the Medical Research Council, who, in the last financial year, expended a sum of approximately £5000 for this purpose in addition to further large sums assigned to the support of other investigations not specifically directed towards the problem of cancer, but which may nevertheless provide the desired clues. The Council hold on behalf of the Government a valuable stock of radium salt, of which fractions are in use for cancer research work at 11 different universities or hospitals in Great Britain and Ireland under a co-ordinated scheme. Expert advice and assistance are provided as required through the Council, and I may add that a special departmental committee was appointed by my right hon. friend in January last to survey the whole question and consider how the medical and administrative resources of the Ministry can best be utilised in the campaign against cancer. The whole subject is continuously under review, and the question of further financial and expert aid will be considered from time to time as experience may show that they can be usefully given.

TUESDAY, JUNE 5TH.

Pensions Administration.

The House went into Committee of Supply on a vote of £73,655,246 for salaries and expenses of the Ministry of Pensions and sundry contributions in respect of the administration of the Ministry of Pensions Act, 1916, and the War Pensions Acts, 1915 to 1921, Mr. J. F. HOPE, Chairman of Committees, in the chair.

Major TRYON (Minister of Pensions) said that the highest point of expenditure of the Ministry was reached in November, 1919, and since then there had been a continuous and steady decline. During the last few months, however, the decline had been slowing down. The reduction last year was 13½ per cent.; this year it would be about 10½ per cent. The actual reduction in the cost of the Ministry this year was £8,844,754, due to decreases in the cost of administration and in the cost of pensions. The number of the paid staff was at its highest in July, 1920, when it was 32,091; this year it was 23,552. Of the men employed 97 per cent. were ex-Service men. Dealing with the criticism of medical boards the right hon. gentleman said if those boards were stopped the men who were getting worse would not receive more, and the men who were getting better would receive more than they ought to. But the change due to medical boards was getting less and less, and it was not the case that they were cutting down pensions rapidly. The charge that secret instructions had been sent out that pensions should be cut down had been inquired into by a Committee which included a number of ex-Service men, and that committee came to the unanimous decision that the story was untrue. Ninety-five per cent. of the doctors on the boards were ex-Service men. In regard to stabilisation the policy of the Ministry must be directed towards the stabilisation of awards. He desired to cut down as much as possible the checking and reopening of cases, and he had been able, with the consent of the Treasury, to arrange to bring the review to a close at the end of the financial year. A change of medical opinion alone would in no case thereafter suffice to justify a change of entitlement.

Mr. MACPHERSON, who moved to reduce the vote by £100, said he was anxious that the convalescent centres should be continued and developed, and clinics should be established in every big town to which after working hours men could go and find the best medical treatment obtainable. During the last three years the State had spent no less than £58,000,000 on medical treatment. It had willingly spent that amount, but in justice the State ought to get a return, and the only return was that as many men as possible should be made healthier and stronger. He would like to be assured that in cases where a man had been given a final award and got ill again that the State should give him his previous treatment. He did not believe the criticism which was levelled against the medical boards, and according to his experience those boards were doing their work well. But it was being said that some boards were wrong in their diagnosis and ruthless and rough in their treatment of pensioners. That was a state of things which, if true, the country would never tolerate, and he thought that the Ministry ought to reassure themselves by making an immediate and effective investigation into complaints. He took the view that only in exceptional cases pensions should be commuted. He was in favour of the seven years' limit, which seemed to him quite fair. In other countries the limit was only two years. There were still, he regretted to say, about 300 ex-Service men in asylums, and if there was any way of proving that their disease had been contributed to by war service the Minister would receive the support of everyone in seeing that these men got their rights.

After further debate,

Captain CRAIG (Parliamentary Secretary to the Ministry of Pensions) dealing with medical treatment, said that the total estimated cost of medical services for 1923-4 was £5,083,000. Of that sum £3,797,000 represented medical treatment and £1,286,000 represented boarding and administration. There was a reduction this year of £1,503,000. On June 30th, 1920, there were 146,000 men under treatment, 155,000 in 1921, 110,000 in 1922, and on March 31st this year 80,000. He repudiated the suggestion that the doctors who served on the medical boards had any bias against ex-Service men. These doctors had been practising in the various districts for years, and practically all of them were still carrying on their ordinary work. It was ridiculous to suppose that they could be prejudiced in their dealings with ex-Service men. The Ministry were always ready, and only too anxious, to adopt any new treatment which had been proved satisfactory. Among others they had adopted the insulin treatment for diabetes. They had also taken advantage of the latest knowledge with regard to the treatment of tropical diseases. One of their most wonderful achievements was in regard to cases of severe facial injury, which were treated at Sidcup. A considerable amount of surgical work was unfortunately still necessary. Cases were constantly occurring where wounds, which had been apparently quiescent for as long as two or three years, broke out again, and in some cases had so affected the bones that the amputation of limbs was necessary. Since Jan. 1st 302 men discharged from the Army with limbs had had amputations. The British Legion had for some time urged upon the Ministry the desirability of separate accommodation for the treatment of mental cases resulting from war service. Accommodation for 300 patients had been secured in an institution in the West of England, and cases were being sent there as rapidly as possible. Already from 50 to 100 cases were in that institution, and further accommodation would be secured elsewhere. With regard to village settlements for tuberculous ex-Service men, they hoped that within a short time they might set some of those settlements in full swing in order that their utility might be tested.

Major TRYON, in winding up the debate, explained that he had decided that in future there should be no time limit in the way of a widow of a pensioner drawing a pension at the full rate if her husband's death be shown to be the result of war service. This applied whether the pension was under 50 per cent. or over it.

Mr. Macpherson's amendment was negatived by 273 votes to 128 and the vote was then agreed to.

Dr. Arthur T. Davies has been elected an honorary member of La Société d'Histoire de la Médecine, Paris.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—On the retirement from the presidency of the Association of Prof. George M. Robertson, of Edinburgh, Dr. Michael J. Nolan, of Down District Asylum, Downpatrick, Lord Chancellor's Visitor in Lunacy for the Belfast district, was elected to succeed him.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, June 14th.

NEUROLOGY: at 8.30 P.M.

Paper:

Dr. L. R. Yealland: Hysterical Fits with Some Reference to Their Treatment.

Friday and Saturday, June 15th and 16th.

LARYNGOLOGY.

Summer Meeting at the Royal Infirmary, Manchester.

Friday, June 15th.

Morning: Reading of papers.

Afternoon: Demonstration of Cases. Annual Dinner at Clarendon Club, at 7.30 P.M.

Saturday, June 16th.

Demonstrations and Operations at the Royal Infirmary and elsewhere.

(For details see special circular.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

The Croonian Lectures have been postponed owing to the regretted illness of the lecturer.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.

WEDNESDAY, June 13th.—5.30 P.M., Mr. James Berry: The Dyspnoea Caused by Goitre.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, June 11th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Mr. Steadman: Dental Dept. 2 P.M., Mr. Banks-Davis: Nose, Throat, and Ear. 2.30 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—11 A.M., Mr. Simson: Gynaecological Demonstration. 12.15 P.M., Dr. Burnford: Medical Pathology. 2.30 P.M., Mr. Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—10 A.M., Dr. Drummond Robinson: Gynaecological Operations. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear. 3 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

MONDAY, June 11th.—4.30 P.M., Mr. V. Cope: Demonstration of Surgical Cases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Lectures at 4.30 P.M.

MONDAY, June 11th.—Mr. H. W. Carson: The Early Diagnosis of Carcinoma of the Stomach.

TUESDAY.—Dr. A. E. Giles: Conservative Gynaecology.

WEDNESDAY.—Mr. J. Howell Evans: Some Congenital Intestinal Lesions. Illustrated by lantern slides.

THURSDAY.—Dr. L. R. Yealland: Pelvic Pain.

FRIDAY.—Dr. F. G. Crookshank: Diagnosis.

ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE, West Smithfield, E.C.

TUESDAY, June 12th.—5 P.M., Dr. Andrew Balfour: Tropical Hygiene (1).

THURSDAY.—5 P.M., Tropical Hygiene (2).

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

WEDNESDAY, June 13th.—4.15 P.M., Dr. W. M. Feldman: Fœtal Physiology.

FRIDAY.—4.15 P.M., Mr. A. J. Walton: The Thyroid Gland.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.

THURSDAY, June 14th.—4.30 P.M., Prof. G. Dreyer: Some New Principles in Bacterial Immunity: their Applications to the Treatment of Refractory Infection.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, June 14th.—4 P.M., Dr. Frew: Mental Deficiency.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

TUESDAY, June 12th.—8.45 P.M., Dr. W. E. Robinson: Respiratory Disease in Infants.

FRIDAY.—8.45 P.M., Dr. N. O. Richards: The Hygiene of Infancy and the Role of the Welfare Centre in Relation to the General Practitioner.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, June 11th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Clinical Lecture: Dr. Aldren Turner.

TUESDAY, June 12th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Intracranial Complications of the Diseases of the Ear: Mr. Just.

THURSDAY, June 14th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Electrical Testing of Muscles: Dr. Bailey.

FRIDAY, June 15th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Muscular Atrophies: Dr. Saunders.

COURSE OF LECTURES ON NEURO-PATHOLOGY.

MONDAY, June 11th.—12 noon, Tissue Reaction in Disease of the Nervous System: Dr. J. Godwin Greenfield.

A COURSE OF 12 LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS AND FRIDAYS if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the whole Course is £12 12s., including Anatomy and Physiology, but these Lectures may be taken separately for a fee of £4 4s. The fee for the Course without Anatomy and Physiology Lectures is £10 10s. Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, June 14th.—5 P.M., Mr. L. G. Phillips: Induction of Abortion.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

MONDAY, June 11th.—At Hereford, Prof. F. H. Edgeworth: Paroxysmal Paralysis of the Elderly.

Appointments.

SLOANE, J. M., M.B., B.Ch., B.A.O. Belfast, has been appointed Fourth Assistant Medical Officer, Knowle Mental Hospital, Fareham, Hants.

WALKER, E. H., M.B., Ch.B., D.P.H. Manch., Medical Officer of Health and School Medical Officer at Stretford.

Kensington, Fulham, and Chelsea General Hospital: BLOOM, H., L.D.S., and PAIN, A., M.R.C.S., L.D.S., Honorary Dental Surgeons.

St. Thomas's Hospital: STORY, A. G., M.R.C.S., L.R.C.P. Lond., COLE, L. B., M.B., B.Ch. Camb., GIBSON, C. P. R., M.R.C.S., L.R.C.P. Lond., FULLER, C. B. S., M.B., B.Ch. Camb., SUDBURY, F. B., M.R.C.S., L.R.C.P. Lond., DAVIES, D. A., M.R.C.S., L.R.C.P. Lond., HUGHES, K. E. A., M.R.C.S., L.R.C.P. Lond., and CROCKFORD, A. L., M.B., B.Ch. Camb., Casualty Officers and Resident Anaesthetists: GAYDON, F. A., M.R.C.S., L.R.C.P. Lond., BAIN, C. W. C., M.B., B.Ch. Oxf., LEYS, D. G., M.B., B.Ch. Oxf., and OLIVER, C. P., M.R.C.S., L.R.C.P. Lond., Resident House Physicians: DREW, J. G., M.R.C.S., L.R.C.P. Lond., Resident House Physician for Children: MACPHERSON, N. S., M.R.C.S., L.R.C.P. Lond., PATRICK, C. V., M.R.C.S., L.R.C.P. Lond., NICHOL, R. W., M.R.C.S., L.R.C.P. Lond., and CHURCHER, J. C., M.R.C.S., L.R.C.P. Lond., Resident House Surgeons: LUND, G. S., M.R.C.S., L.R.C.P. Lond., Resident Orthopaedic House Surgeon: WILLIAMS, E., M.R.C.S., L.R.C.P. Lond., and KIES, J. P., M.R.C.S., L.R.C.P. Lond., Resident House Surgeons for Ear, Nose, and Throat: SMALLEY, L., M.R.C.S., L.R.C.P. Lond., Senior Obstetric House Physician, and BERRIDGE, W. C. M., M.R.C.S., L.R.C.P. Lond., Junior Obstetric House Physician: GOUGH, J. H. H., M.R.C.S., L.R.C.P. Lond., Senior Ophthalmic House Surgeon, and DOGGART, J. H., M.R.C.S., L.R.C.P. Lond., Junior Ophthalmic House Surgeon: CAVENAGH, J. B., M.C., M.B., B.Ch. Oxf., NEILSON, D. F. A., F.R.C.S. Eng., LAWN, L., M.R.C.S., L.R.C.P. Lond., JEFFERY, A. L. P., M.R.C.S., L.R.C.P. Lond., MARRINER, H. I., F.R.C.S. Edin., BRIGGS, T. F., M.R.C.S., L.R.C.P. Lond., WALFORD, A. S. H., M.R.C.S., L.R.C.P. Lond., FRANKLIN, C. A. H., M.R.C.S., L.R.C.P. Lond., LAUTRE, M. A., M.R.C.S., L.R.C.P. Lond., LUPTON, C. A., M.R.C.S., L.R.C.P. Lond., PALMER, H. M., M.R.C.S., L.R.C.P. Lond., MORRISON, R. G., M.R.C.S., L.R.C.P. Lond., THOMSON, T. R., M.R.C.S., L.R.C.P. Lond., SHIRES, B., M.B., Ch.B. Edin., FACEY, R. V., M.R.C.S., L.R.C.P. Lond., MURRELL, E. B., M.R.C.S., L.R.C.P. Lond., WILKINSON, M. C., M.R.C.S., L.R.C.P. Lond., CURWEN, E. C., M.R.C.S., L.R.C.P. Lond., SWAN, G. R. M., M.R.C.S., L.R.C.P. Lond., PEARCE, T. V., M.R.C.S., L.R.C.P. Lond., RICKMAN, J., M.B., B.Ch. Camb., SLATER, A. E., M.R.C.S., L.R.C.P. Lond., ALLAN, F. G., M.R.C.S., L.R.C.P. Lond., and WILLIAMS, L. G., M.C., M.R.C.S., L.R.C.P. Lond., Clinical Assistants.

Vacancies.

For further information refer to the advertisement columns.

Acton Hospital, Gunnersbury-lane, Acton, W.—R.M.O. £125.

Bangor, Carnarvonshire and Anglesey Infirmary.—H.S. £200.

Birmingham and Midland Eye Hospital.—H.S. £120.

Birmingham, Queen's Hospital.—Hon. P's. Also Asst. Radiographer. £250.

Blackburn County Borough.—Asst. M.O.H., &c. £600.

Bootle Borough Hospital.—Hon. Gyn. S. Also Hon. S. to Ear, Nose, and Throat.

Bristol General Hospital.—H.S. £125.

Cairo, Kitchener Hospital for Women.—Female Res. M.O., £E.400.

Cancer Hospital, Fulham-road, S.W.—H.S. £100.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.

Charing Cross Hospital Medical School, W.C.—Pathological Chemist. £400.

Chiswick Hospital, Netheravon-road, Chiswick, W.—Consulting P. and Consulting S.

Derbyshire Royal Infirmary, Derby.—H.S. £200.

Eastbourne, Princess Alice Memorial Hospital.—Res. H.S. £175.

Effe and Kinross Joint Sanatorium.—Res. Asst. M.O. £250.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., H.S., Cas. M.O., and Cas. S.O. Each £100.

Hayward's Heath Hospital.—Hon. Radiologist.

London County Mental Hospital Service.—Seventh Asst. M.O. £440.

London Lock Hospital, 91, Dean-street, W.—Clin. Assistantships.

Maidstone, Kent County Ophthalmic Hospital.—H.S. £300.

Manchester and District Radium Institute.—Asst. Radiologist. £400.

Manchester Children's Hospital.—Asst. S. £50.

Margate, Royal Sea Bathing Hospital.—Res. S. £200.

Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—Senior Clin. Asst.

Oldham Royal Infirmary.—H.S.'s. Each £200.

Portsmouth Royal Hospital.—Sen. H.S. £200. Also Two Asst. H.S.'s. Each £150.

Preston, Lancs, Whittingham County Mental Hospital.—Pathologist Asst. M.O. £590 17s.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. Cas. H.S. £100.

Royal Northern Hospital, Holloway, N.—Ophth. S.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. £100.

St. Lucia, Victoria Hospital.—Res. S. £500.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Clinical Assts.

Shanghai Municipal Council, Public Health Dept.—Radiologist. Taels 700 per mensem.

Sheffield Royal Infirmary.—Clin. Asst. £300.

Sheffield, South Yorkshire Asylum.—M.O. £400.

Sudan Government, Medical Dept.—Med. Inspector. £E.720.

Swansea General and Eye Hospital.—H.S. £200.

Victoria Hospital for Children, Tite-street, Chelsea.—H.P. £100.

West London Hospital, Hammersmith-road, W.—H.P. and H.S. Each £100. Also Asst. Anesth. and Hon. Med. Radiologist.

Westminster Hospital, Broad Sanctuary, S.W.—Clin. Asst. and Refractionist to Ophth. Dept. £50.

Wigan Infirmary.—Third H.S. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments:—Hawes,

Yorks (North Riding): Wingate, Durham; Wednesbury,

Staffs; Chipping Campden, Glos.

The Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the

Newark and Nottingham County Courts. Applications

should reach the Private Secretary, Home Office, S.W.,

not later than June 23rd.

Births, Marriages, and Deaths.

BIRTHS.

MILNE.—On May 29th, the wife of Robert Milne, F.R.C.S., M.S., London Hospital, of a son.

DEATHS.

CLAPHAM.—On May 31st, at his residence, the Five Gables, Mayfield, Sussex, William Crochley Sampson Clapham, M.D., F.R.C.P.

KENNEDY.—On June 2nd, at King Henry's-road, Hampstead, Surgeon Captain Graham E. Kennedy, R.N.

TROUTBECK.—On June 3rd, at Ashley-gardens, S.W., suddenly, of angina pectoris, Henry Troutbeck, M.B., B.C.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

THE LATEST SUBSCRIPTION RATES				
INLAND	{ One Year	£2	2	0
	{ Six Months	1	1	0
	{ Three Months	0	10	6
ABROAD	{ One Year	2	10	0
	{ Six Months	1	5	0
	{ Three Months	0	12	6

Notes, Comments, and Abstracts.

BRITISH HOSPITALS ASSOCIATION. SOME ADMINISTRATIVE PROBLEMS.

THE annual conference of the British Hospitals Association, held at Sheffield on May 31st and June 1st, was the opportunity for the statement and discussion of many intricate problems affecting the welfare and organisation of voluntary hospitals throughout the country. A section of Sir Napier Burnett's address on Voluntary Hospital Finance was abstracted in our columns last week. We select below from the communications made by Lord Hambleden on Hospital Finance in its Relation to Approved Societies, by Mr. H. J. Waring on the Future of Voluntary Hospitals from a Medical Viewpoint, and by Mr. H. L. Eason on Problems of Modern Hospital Administration, certain passages of especial importance.

HOSPITAL FINANCE IN ITS RELATION TO APPROVED SOCIETIES.

Lord Hambleden said that at the last annual meeting of the Association Mr. Thomas had fairly pointed out that the scheme of National Health Insurance, while it makes provision for the treatment of minor ailments which can be dealt with by the panel doctor in his surgery, makes no provision at all for the special treatment required for serious cases, which can only be dealt with in the hospitals of the country. However, though the grant which some of the approved societies had now agreed to make in respect of certain of their members who are treated as in-patients did not at present form more than a fraction of the sums received in payment by or on account of patients, in principle the payment was an important and welcome departure from the policy formerly followed by approved societies.

The governing bodies of the hospitals throughout the country had since the war been forced to look for an increase of income from payment by or on behalf of patients who receive treatment towards the cost of maintenance while in hospital. They were right in deciding that in respect of insured persons there was a double claim, for not only was the patient benefited in common with all others, but his society was saved considerable sums by the service which the hospital rendered in restoring him rapidly to health.

The societies, after many negotiations, decided in principle to allot a definite sum from realised surplus to the support of the hospitals, and it became necessary to devise means by which the amount available could be most equitably divided. Donations pure and simple were ruled out, for it was agreed that the scheme must be so drawn as to provide that every member might have a reasonable opportunity of participating, or, in other words, there must be some consideration to the societies for payment made. Throughout the negotiations it was the duty of those who represented the hospitals to agree to nothing which would encroach upon the principles of the voluntary system. There was, perhaps naturally, a tendency on the part of those who spoke for the approved societies to suggest that preference might be given to those of their members for whom payment was to be made. This question raised doubts in the minds of some hospital committees, but it was pointed out to the societies that hospital authorities acting through their medical staff must be the sole judges of the fitness for hospital treatment of all individuals who applied for it. The societies recognised the necessity of admitting this point and showed no desire to withdraw the grant in consequence of the decision of the British Hospitals Association representatives to make it a condition which could not under any circumstances be waived.

Amount of Payment by Approved Societies in 1922.

The basis of the scheme so far as the two great industrial societies were concerned is a payment in the first instance of £1 1s. per week in respect of each member entitled to additional benefits — i.e., those members who were insured not later than December, 1918, and were still members of the society on July 5th, 1920. The amounts set aside by the societies from which he had been able to obtain returns were as follows: the Prudential Approved Societies, £150,000 per annum; the National Amalgamated, £200,000 total to cover five years; the National Deposit Friendly Society, £75,000 total to cover five years; the Post Office Employees, £2000 per annum; the Sailors' and Firemen's Union, £400 per annum. Unfortunately the societies were not able to give their figures in a common form, some having made a return of the number of weeks' treatment paid for and others the number of persons for whom payment was made. The Prudential paid out in 1922 £83,000, or little more than half the amount of £150,000 set aside, for 45,000 weeks' treatment. The National Amalgamated paid out £42,138 for 24,072 weeks' treatment. The National Deposit Friendly

Society paid out £10,224 for the treatment of 2234 persons, or less than half the sum expected by them, as will be seen if we divide the total of £75,000 into five portions. The other two societies paid out less than £1000 between them. The total paid amounted to over £135,000, a sum by no means to be despised.

One interesting point in connexion with these payments is the fact that the amounts were much greater in the later than in the earlier quarters of the year. The Prudential, for instance, paid for 6567 weeks in the first quarter, 11,061 weeks in the second, 12,696 in the third, and 14,278 in the fourth. In the first quarter of this year 15,200 weeks are claimed for. The National Amalgamated returns 3800 weeks for the first quarter, 5585 for the second, 6542 for the third, and 8145 for the last. The National Deposit paid for 470 persons in the first quarter and 707 in the last: but in their case there was a curious drop to 443 in the third quarter. From these figures it would appear that hospitals were somewhat slow to avail themselves of the grant, for it did not seem probable that more insured persons were treated in the last than in the first quarter.

The balances which remained at the end of the year in the case of those societies which did not pay out as much as was expected were to be used as follows. The Prudential increased their payment from £1 to £2 per week after the first quarter of last year and carried forward their balance for distribution in this and succeeding years. The National Deposit Friendly Society stated that the experience of 1922 showed that if the payment had been fixed at 30s. per week instead of £1 1s. the amount available would have been approximately absorbed. The society had now agreed not only to increase the payment from £1 1s. to 30s. per week, but to make this apply as from the commencement of the arrangement. Steps are being taken to make the back payment, which will amount to nearly 50 per cent. of the £10,224 already distributed.

Figures Obtained from Hospitals.

Lord Hambleden had, moreover, received figures from more than 100 general hospitals of over 100 beds. From these returns it appeared that in London general hospitals insured persons were more than 20 per cent. of all in-patients, who numbered 97,761, but that only 9 per cent. of all patients were qualified for the additional benefit under the scheme. The variations in the figures were remarkable, for one hospital returned only 1 per cent., and another less than 1 per cent., although in the latter case all insured persons taken as in-patients numbered 17 per cent. of the whole. Lord Hambleden could hardly think that in this case and some other cases full advantage has been taken of the grant.

Some of the special hospitals showed a much higher average. A chest hospital had received grants for 30 per cent. of all its patients, but an ophthalmic hospital for 8 per cent. only, and an orthopaedic hospital for the same number. The amount received by the London hospitals from which he had received returns was £41,332, on account of 9915 patients.

The striking feature in the figures which he had obtained from provincial hospitals was the much higher percentage of insured persons treated by them. In the 35 hospitals in England which were able to give complete returns, of 108,000 patients 33,828 were insured persons, or over 31 per cent. Scotland showed a still higher average, for of the 34,000 patients of whom he had records 13,200 were insured, or 40 per cent. In England, outside London, the proportion of patients for whom some payment was made was 87 per cent. of all in-patients, and the total amount received was £57,498. In Scotland, although the number of insured patients was so high, the amount received was only given as £5200, of which £3820 was received by one hospital.

Lord Hambleden had no definite evidence to offer except of a negative kind as to whether the payment of this grant affected the growing system of workmen's contributions. Even if a contributor who was insured should make objection, it could well be pointed out that the donation made by the societies covered only a percentage of insured persons, and even for such persons represented but a fraction of the cost of maintenance while in hospital. While grateful for the undoubted help which this grant from the approved societies had brought to hospitals, Lord Hambleden mentioned two main criticisms. In the first place, the basis of the scheme was not one which made for permanency. The grant was made out of realised surplus, and its basis was precarious. In the second place, some societies might have surpluses, others might have none, and in the case of those fortunate enough to have balances to dispose of, their disposition depended upon the votes of their members. In the existing scheme societies representing only a little more than half the insured persons in the country were taking part: in the case of the remainder, when a surplus existed it was decided to use it for additional cash benefits.

A few years hence very important questions would thus necessarily arise. It would be a great mistake to give encouragement to the idea that those responsible for the

management of hospitals are prepared to surrender their principles for a cash payment. But the very fact that those principles are so strongly held and so widely supported should encourage them to preserve an open mind upon any scheme which can be proved to bring them nearer to a more perfect system of curing the sick and alleviating the troubles of the suffering.

Mr. H. J. Waring made some interesting suggestions on the GRADING OF HOSPITAL PATIENTS.

He pointed out that from a financial point of view patients treated in a hospital may be graded in the following classes:—

1. The necessitous poor who, from their pecuniary condition, are unable to pay or contribute anything. 2. The necessitous poor who can make a small contribution towards hospital accommodation and maintenance, but nothing for medical treatment. 3. The necessitous but not always poor who can pay the cost of hospital accommodation and maintenance, but nothing towards medical treatment. 4. The middle and professional classes, who can pay for ordinary hospital accommodation and maintenance and moderate fees for treatment. 5. The rich and upper classes, who can pay for better-class hospital accommodation and maintenance and ordinary fees for treatment. The requirements of these two latter grades (4 and 5) can be readily met by providing different classes of rooms. Thus for patients in grade 4 two- or four-bedded wards divided by partitions may be provided, or small single rooms of different sizes and aspects; and for patients in grade 5 larger rooms with a good aspect, or even a suite of rooms.

The practical result as regards the general institution of payment by patients for or towards hospital maintenance and treatment is, that in order to be fair to all classes of the community every voluntary hospital should provide suitable accommodation for all classes of the community who wish to avail themselves of its resources. In order to do this it will be necessary for most voluntary hospitals to build new accommodation suitable to this purpose.

The advantages which would be gained by the provision of accommodation for paying patients in a voluntary hospital would be as follows:—

To Patients.—Members of the upper, middle, and professional classes would be able readily to obtain institutional investigation and treatment of the same high standard as that which they provide or assist in providing for the necessitous poor.

To Hospitals.—(1) The special departments of many hospitals could be more fully and continuously utilised than at the present time, especially in hospitals where such departments are only open on two or three days or half days per week. Departments of pathology, X ray, electro-therapeutics and mechano-therapeutics are examples of this nature. (2) The overhead charges for general administration would not of necessity be increased, or in any case would not be proportionately increased; a portion of such charges could legitimately be transferred to the paying department, which could be made a source of profit to the hospital.

To Hospital Staffs.—Members of hospital staffs would be able to have some of their own patients in the private rooms or paying department, and thus save themselves considerable time in going from one private hospital or nursing home to another.

To Staff and Patients.—Resident medical officers could be appointed to a paying department of this kind, whose services would be available for patients in the absence of the patient's own medical man. The advantages provided by the establishment of a paying department of the kind mentioned would, I think, be most appreciated in connexion with maternity and surgery.

In the course of an address dealing with problems of hospital administration Mr. Herbert L. Eason, medical superintendent of Guy's Hospital, dwelt at some length on the

MAINTENANCE OF THE SUPPLY OF NURSES

on the basis that this is one of the most acute problems with which we are faced. According to him, the present supply of probationers is most precarious, and there are few hospitals that have a full nursing staff. Before the war probationers were not usually admitted for training until they were 23 years of age or over, but efforts to enlist the sympathy of head-mistresses in bringing nursing as a career to the notice of girls at school are met by the rejoinder that if there is a compulsory interval between leaving school and commencing training, the girl drifts off into some other occupation or career. Probationers are therefore admitted into many hospitals now at the age of 19, but the experiment is far from being a success. Girls of this age often do not know their own mind, and after a course of instruction in a preliminary training school many of them come to the conclusion that nursing does not appeal to them, or that it is too hard. The percentage of sickness among young nurses is also much higher than among older women, as they are not sufficiently resistant to disease. Of every batch of probationers entering

a preliminary training school at a hospital, from 25 to 50 per cent. may leave the hospital before the completion of their first year of training. It also appears to be the experience of many matrons that the more off-duty time that is allowed the higher is the incidence of sickness. The off-duty time is occupied with pleasure and amusement, and the nurse returns to her ward fatigued and more liable to infection. The probationer's life in these days is also made more strenuous by the increasing severity of her educational curriculum. The modern tendency is for the training of nurses to become more and more advanced on the scientific side, so that there appears to be a danger that the curriculum for probationers will be little less than that of the woman doctor. As most of this mental work has to be done by the nurse in her off-duty hours, when she is usually physically fatigued, the strain may soon become intolerable. As it is essential that a nurse should have a good physique, and physique and intellectual capacity do not always go hand in hand, there may be a danger that, in demanding too high an intellectual standard from our probationers, we shall lose those women who are by nature physically best fitted to undertake the strenuous life of the hospital nurse.

Nursing in the wards is also becoming harder and harder every day owing to the increasing demands of medical service. Investigations are becoming so complex, bismuth meals and special diets are adding so greatly to the routine work of a ward, and the number of persons who now have duties in the wards and require the attention of the nursing staff is increasing to such an extent that it is impossible to staff a hospital with the number of nurses that was adequate a few years ago. And the problem is not merely one of more nurses. More nurses require greater housing accommodation, greater nursing accommodation means an increased domestic staff, who in their turn require additional accommodation, and all the while the cost of maintenance in respect of food, heating, and lighting increases without limit. Then, again, at the end of the period of training, the fees now charged in private by the trained nurse are becoming so high that it is becoming increasingly difficult for persons of moderate means to afford their services, and nurses realise that there is hardly a living to be made.

The supply of nurses for hospitals, their training and the fees charged for their services in after life are, therefore, all problems which require the most cool-headed consideration on the part of those who are responsible for the future of the nursing profession. Finally, the pensions to which nurses can aspire at the end of their professional life are in most cases miserably inadequate, and a nurse is usually worn out at fifty. Her professional career is very short, and unless she is of a rigidly economical frame of mind the end of her life may be a sad struggle with actual poverty. It is essential, therefore, Mr. Eason said, in order to attract nurses of the right type in sufficient numbers to train at our hospitals that every attempt should be made to make their life, while in training, attractive by the provision of comfortable bedrooms, good sitting rooms, and amusement in the way of week-end cottages, sports grounds, nurses' leagues, and all forms of coöperative interest and social enjoyment. And for the trained nurse some adequate pension scheme is the problem of the hour.

FINAL PENSIONS AWARDS.

THE Minister of Pensions in a recent circular corrects a misunderstanding regarding certain decisions by the Pensions (Assessment) Appeal Tribunals on appeals against final awards. It is erroneously supposed that the setting aside of a final award by a tribunal implies that the award will be increased, or, if the appeal was against a nil disablement award or final weekly allowance, that a fresh award will be made at once. This is not the case. Under the War Pensions Act, 1921, the tribunal is empowered to confirm, increase, decrease, or set aside a final award, and its decisions are equally binding on the Ministry of Pensions and the appellant. The setting aside of a final award ordinarily means that the tribunal, without challenging the assessment, considers that the time has not yet come for the making of a final award. It does not necessarily follow that an increase in the current award will be due, or that a fresh award will be made if none is current. The man reverts to the position he was in before the final award was made. His case is then reconsidered under the Pension Warrants by the Ministry, and where necessary a further assessment by a medical board of his degree of disablement is obtained. In any event he has the right to claim re-examination on the ground that his condition has deteriorated. If the man's condition is found to have deteriorated, a fresh award is made; but if his condition has not deteriorated the current award remains in force. At a later stage, however, his case will again be considered with a view to a final award, and if the man is dissatisfied with such final award, he can avail himself of a further right of appeal to the Pensions (Assessment) Appeal Tribunal.

An Address

ON THE

DURATION OF PREGNANCY IN ITS MEDICO-LEGAL ASPECT.

Opening a Discussion at the Meeting of the Medico-Legal Society on April 17th, 1923,

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THIS contribution to the discussion of the duration of pregnancy in its medico-legal aspect proposes to state the difficulties in the way of estimating with precision either the normal duration of pregnancy, or in any given case, the stage to which it has advanced when the child is born. Our predecessors in obstetrics of a hundred years ago held definite and decided opinions upon the normal length of pregnancy in women, and they appeared to be very largely unaware of the difficulties with which the subject bristles. The famous legitimacy trial in the year 1816, known as the Gardner Peerage case, turned very largely upon the question of the extent to which it was possible for pregnancy to be prolonged in women. One of the medical witnesses, by name Sir Charles Clarke, laid it down that it was a law of nature that 40 weeks after conception was the latest period to which pregnancy could be prolonged. His feelings were so strong in the matter that, according to the custom of those days, he broke into Latin and declared that 40 weeks was "ultimum tempus pariendi mulieribus constitutum." We now know that to determine the normal duration of pregnancy is in reality a problem of great complexity, and, as we shall see, it probably does not admit of a precise solution.

The question is of medico-legal interest mainly in its bearing upon the question of legitimacy, and the problem usually presents itself thus: If a child is born upon a given date, can the date of its procreation be determined therefrom with precision? And if not, can limits be set beyond which the procreation of the child would not be possible? It is conceivable that in the future the question of parentage may be attacked in quite a different manner. I understand that it is the English law at the present time that points of physical resemblance do not constitute evidence which can be received in court. It is possible, however, that certain reactions of the blood may become of service under limited circumstances. The reaction of blood corpuscles in relation to clotting allows of four "blood-groups" being distinguished; it has been shown that these characters of the blood are transmitted on Mendelian principles, and it is not impossible that a given blood-group in the child may be shown to be incompatible with certain other blood-groups in the presumptive parents. In the meantime we are far from having arrived at this point, and the only possible medical contribution to problems of paternity lies in the question of the duration of pregnancy and its relation to the characteristics of the child when born.

PHYSIOLOGY OF MAMMALIAN REPRODUCTION.

The fundamental difficulty in determining the duration of pregnancy lies in the fact that it commences a profound obscurity. How can we state the duration of any phenomenon unless we can establish the time of its beginning as well of its ending? A further difficulty is that the termination of pregnancy in the birth of the child is frequently not its normal termination, and we have to speak of new-born infants as either premature, mature, or post-mature. It may be well, therefore, for me to begin by mentioning one or two salient points in the physiology of mammalian reproduction. The gestation process begins with the act of fertilisation—i.e., the union of the egg-cell (female) with the spermatozoön (male). The egg-cells

are in the ovary; periodically a certain number of them ripen, become liberated from the ovary, and enter the Fallopian tube in women, or the upper part of the double uterus in animals. The discharge of the egg-cells from the ovary is called the process of ovulation. In women ovulation is periodic, but its precise relation to menstruation is still undetermined; probably it occurs every three to four weeks in variable relation to the occurrence of menstruation. There are no outward signs by which the occurrence of ovulation in women can be recognised. As a rule only one egg-cell ripens at each ovulation; occasionally two or even three may ripen at the same time. Having reached the Fallopian tube the egg-cell has scant power of survival, and probably perishes in a day or two if not fertilised. Spermatozoa are deposited in the vagina in very large numbers, estimated at over 200 millions in each ejaculation. The greater number probably perish; a few make their way by their own motility into the Fallopian tube, and it is estimated that the journey from the vagina to the Fallopian tube takes about 24 hours. The vitality of the spermatozoa is remarkable, and they are able to remain active for very much longer than is the case with the egg-cells. As long ago as 1850 living spermatozoa had been found in the uterus from seven to eight days after insemination (von Haussmann). More recently a remarkable case was reported by Dührssen,¹ in which he found spermatozoa alive in the Fallopian tube 23 days after insemination. The case was that of a woman who was operated on nine days after her admission to hospital, and who stated that the last act of insemination had occurred 14 days previous to her entering the hospital. Even if the data in this case are not acceptable in their entirety, there is no doubt that in this instance the spermatozoa showed very remarkable powers of survival. In an unfavourable environment we know that spermatozoa lose their motility in a few hours; but in the plicated tubal mucosa they find conditions which are no doubt favourable, to a remarkable extent, to the maintenance of their vitality. We should not be justified in assuming, however, that the spermatozoa in all cases are able to survive as long as this.

In women the difficulty of determining the date of fertilisation is that although we can be reasonably sure that spermatozoa are in the genital tract, we never know when the egg-cell will be there to meet them. Further, the capacity of survival of the spermatozoa is probably variable in different individuals, and consequently an exact adjustment of insemination and ovulation may be necessary if pregnancy is to occur.

GESTATION IN LOWER MAMMALIAN ANIMALS.

In the case of lower mammalian animals the matter is somewhat simpler. In these creatures the approach of the male is only permitted at certain seasons of sexual activity; during the seasonal rut ovulation is very active, egg-cells are discharged in large numbers, and there is practical certainty that egg-cells and spermatozoa will meet with the minimum of delay. Hence, the fact that pregnancy almost invariably follows if the animals are healthy. Breeders of pedigree horses and cattle have given us some interesting figures of the duration of pregnancy in mares² and cows;³ in these cases coitus is limited to a single occasion, and is made the starting-point of the calculation. Their figures show that in cows the period of gestation varied from 252 days to 320 days; the mean of the extreme figures is 286 days, and the variation from the mean in either direction is about 12½ per cent. In mares the period of gestation varied from 311 to 394 days; the mean of the extreme figures is here 352 days, and the variation in either direction from the mean again amounts to about 12 per cent. The conclusion appears to be inevitable that in these animals the period of gestation is not fixed, but is actually variable within rather wide limits. As we have seen, there is a high degree of probability that fertilisation follows very closely upon insemination, and the margin of possible error is very narrow.

CALCULATION OF DURATION OF PREGNANCY IN WOMEN.

Turning now to pregnancy in women, there are two possible methods of calculating its onset: the date of intercourse and the date of the last menstrual period. The first method is seldom available, for unless the calculation can be made from a single act of intercourse it is not applicable. Carefully investigated instances have, however, from time to time been put on record, and a series of 40 were recorded many years ago by Reid.⁴ It is interesting to compare Reid's figures with those just quoted records of animals. The extreme limits were 260 and 294 days, the mean of these figures is 277, and the variation in either direction from the mean amounts to 6 per cent., or only one-half of that found in cows and mares. The degree of variation must further be subjected to some reduction on account of the high degree of probability that in many cases a considerable interval may have elapsed between insemination and fertilisation, for the reasons which have been already considered. It appears, therefore, that in women the normal duration of pregnancy, though variable, is not variable to the same extent as in cows and mares. No better illustration of variability can be quoted than the fact, which has frequently been observed, that two women in whom fruitful coitus occurred upon the same date may be confined at widely different dates (Lowenhardt).

The method of calculation from the date of the last monthly period naturally yields results which show much greater variation than those just mentioned. A series of 782 carefully observed cases are quoted by Simpson,⁵ in which the extreme limits were 252 days and 326 days. The mean of these two figures is 289, and the variation in either direction from the mean amounts to 13 per cent., a figure which closely approximates to that found in cows and mares. The margin of error in the calculation from the last menstruation is, however, so wide that we must now consider it in a little detail.

The first source of fallacy has been already mentioned—viz., the uncertainty as to the incidence of ovulation. It may occur in all probability at any part of the menstrual cycle, but clinical observations lead us to believe that the week immediately following the menstrual period is the time when it is most likely to occur. The menstrual cycle varies in length in different women, and may vary in the same woman at different times, and ovulation undoubtedly may occur at any point in the cycle. This fact probably accounts for the relative infrequency of fruitful coitus in women as compared with lower animals, and if it were not for the remarkable power of survival of human spermatozoa the odds against the occurrence of pregnancy would be much higher than is actually the case. We have seen that spermatozoa may remain alive in the Fallopian tube for three weeks, and it is possible that even that does not represent the extreme limit of their vitality. Once they have found their way to the tube, they can therefore await the arrival of the egg-cell, practically throughout the menstrual cycle, and in this way opportunities of fertilisation at any point of the menstrual cycle are clearly present. The uncertainty, however, remains, and it has to be admitted that fertilisation may occur as much as three weeks after the last monthly period even in the absence of a further coitus. The effect of such an error would be to make it appear that pregnancy has lasted three weeks longer than is actually the case.

This fallacy is fundamental, but there are two other fallacies which may be called accidental, and are only occasionally encountered. A small proportion of women habitually menstruate irregularly at prolonged intervals; in others menstruation may be suppressed for a time from illness, or nervous shock, or from the fact that they are nursing. Pregnancy may nevertheless occur under any of these conditions, and it is obvious that calculation from the last monthly period would then be greatly at fault. Occasionally the converse difficulty

is met with, for there are women who continue to menstruate for two to three months after conception has taken place. This occurrence is extremely rare; many alleged instances turn out on careful inquiry to be in reality attacks of bleeding due to minor pathological conditions and not to menstruation. The possibility of the occurrence cannot, however, be denied, and its effect will be to make it appear that pregnancy has lasted a shorter time than is actually the case.

AVERAGE DURATION.

It follows from what has now been said that nothing more than an approximate estimate can be made of the date of commencement of pregnancy in women. It is, therefore, necessary to fall back upon clinical observations in seeking a guide as to what is its normal or average duration. I think it would be preferable to speak of the average rather than the normal duration for wide variations from the average may occur without any clearly defined departure from the normal characters of the child when born. Such observations show that when the date of the last menstruation is taken 24 per cent. go to the fortieth week, 22 per cent. terminate in the thirty-ninth week, and 22 per cent. go to the forty-first week (Simpson). That is to say, 81 per cent., or four-fifths, terminate in the period of three weeks represented by the fortieth and the week earlier and the week later than this. The calculation can be made from coitus, 45 per cent. are found to terminate in the fortieth week, the total for the three weeks being 77 per cent., or very near the same as when the calculation is made from menstruation. The fortieth week includes the 274 to the 280th days, and in practice we are in the habit of reckoning 280 days from the cessation of the last period, or 274 days from the date of coitus.

Variations within the limits of three weeks may clearly be accounted for by the uncertain incidence of ovulation and are not incompatible with the assumption that the gestation process may actually be almost if not identically the same in 80 per cent. of cases. Much wider variations may, however, occur, and these can only be explained on the assumption that the actual process of gestation also varies in length; this may occur not only in different subjects, but in the same woman in successive pregnancies. The extreme limits in the series I have just quoted from Simpson were 252 and 326 days, an interval of 74 days, which clearly indicates variation in the length of gestation itself. Taussig⁶ quoted the case of a woman who in three successive pregnancies went 277 days, 325 days and 285 days respectively, which shows that a wide variation may occur in the same individual in the length of the gestation process.

If we accept the fact that the length of the gestation process in women is variable, it is not very easy to advance a satisfactory explanation of this variability because we do not know by what means pregnancy is terminated and the birth of the child brought about. What is it that brings about the expulsion of the child from the uterus? Many years ago I and others pointed out the fact that the placenta of a mature child showed degenerative changes which tended to render it unfit for the proper performance of its functions. These changes were due to age, for the placenta is an organ with a very brief life-cycle. It is possible that the progressive unfitness of the placenta for its work is the determining cause of the onset of labour, but what is the connecting link between placental degeneration and the outbreak of expulsive uterine action which leads to the expulsion of the child we do not know. Many interesting speculations might be made, but it would be unprofitable to touch upon them on this occasion.

FETAL MATURITY.

The point at which we have arrived is that we are quite unable to deduce with precision the date of procreation from the date of delivery. We must now inquire whether such a deduction can be made from the characters of the child when born. We know fairly

accurately the calculated period of pregnancy at which a child becomes viable—i.e., capable of a separate existence. The calculated period is 28 weeks, but as we have seen this may be an over-estimate up to the limit of about three weeks of the actual duration of gestation. We know, further, that the rearing of a child born between the calculated periods of 28 and 32 weeks is extremely difficult and the mortality among such infants is very high. There is very little difficulty in placing a premature baby in the calculated month to which it belongs, and when this point is of medico-legal importance the data are sufficiently accurate to allow of the expression of a decided opinion. It would be tedious to recite the dimensions of weight and length, and the other characteristics of prematurity, upon which reliance is placed, but I will here refer to an illustrative case from my own experience.

I was consulted several years ago upon a case in which the following were the pertinent facts. After a long absence the husband returned home on May 13th and lived with his wife for several weeks thereafter; the wife, who menstruated irregularly, had her last period on April 5th; the child was born on Nov. 23rd, 194 days after the date of the husband's return and presumably of the fruitful coitus. The doctor who attended the confinement expressed the opinion that the child was premature; it was weighed at 8 lb. at birth, but the scales were subsequently said to be inaccurate; it was nursed by the mother, and no trouble was found in rearing it. A child born at 194 days after fruitful coitus would be in the twenty-eighth week of gestation. The average weight of an infant born at that period is from 2½ to 3 lb.; it is extremely feeble and only very exceptionally can it be reared. I had no hesitation in expressing the opinion that a child born at 194 days could not possibly have weighed anything approaching 8 lb., its extreme prematurity would attract immediate attention to its condition, and it could not have been reared without elaborate care and precaution. The facts were inconsistent with such a degree of prematurity. In point of fact the case did not come into court, and I believe that the illegitimacy of the child was conceded.

In a popular medical work Shakespeare is quoted as asserting that a child may survive which comes into the world "full 14 weeks before the course of time." In our reckoning this would be the twenty-sixth week. The truth is that the medical work in question has totally misrepresented Shakespeare, and I should like to give the true account of what he did say about it. The passage occurs in *King John*, Act I. The younger son of the late Sir Robert Faulconbridge claims his father's title and estates on the ground that his elder brother is illegitimate. He pleads:—

"That this my mother's son was none of his (Sir Robert's);
And if he were, he came into the world
Full fourteen weeks before the course of time."

The elder son begs the truth of his mother on the ground that he himself bears no physical resemblance to his reputed father. He says:—

"We know his (Sir Robert's) handy-work:—therefore,
good mother,
To whom am I beholden for these limbs?
Sir Robert never help to make this leg."

And Lady Faulconbridge makes the confession:—

"King Richard Cœur-de-Lion was thy father:
By long and vehement suit I was seduc'd
To make room for him in my husband's bed."

He entirely disposes of the assertion that Shakespeare lent his authority to a statement in obstetrics so erroneous as that attributed to him.

In the case of lesser degrees of prematurity it is not possible to speak with precision, for the rate at which, after it is fully formed, the child increases in weight and in length is very variable. At term the average weight of the child is 7 lb. Whitridge Williams⁷ and in 500 carefully observed cases at calculated full term that the weight varied between 4 lb. 11 oz. and 6 lb. 12 oz. In a series of cases carefully estimated to be of 36 weeks development—i.e., a month premature—found the weight varied from 4 lb. to 7 lb. Similar

variations are found at all degrees of prematurity, and it must be admitted that the conditions which govern the weight of the developing child are largely unknown. The same is true of length, although this is, perhaps, a little more constant than weight.

Practically speaking it comes to this, that children born in the last four weeks of pregnancy may show all, or nearly all, the usual outward signs of maturity. Points of detail such as the proportion of nucleated to non-nucleated hæmocytes in the blood, and the ossification of the long bones, may in the future prove to be reliable guides to the stage of development, but at the moment our knowledge is incomplete, and does not allow us to make practical use of them.

PROTRACTED GESTATION.

Cases in which gestation exceeds the average duration are more often of medico-legal interest than those in which the average has not been attained. Cases in which pregnancy exceeds 300 calculated days from the last menstruation may be spoken of as cases of "protracted gestation." They are not very uncommon; probably something like 6 per cent. of cases surpass 300 days in Germany; in this country they are perhaps less common, and it is quite possible that racial characteristics have their bearing upon the length of the gestation process. It must be recollected that figures given in this connexion are calculated periods and are subject to the errors previously referred to. The extreme limit of calculated duration, at present on record, is, to the best of my knowledge, 336 days recorded by Bensinger.⁸ The calculation was made from the first day of menstruation and not from its cessation, which makes the period of gestation a few days longer than it would be if calculated by our method.

The calculated period in the Gaskill case was 331 days from the last coitus. Bensinger's case, which went to 336 days, was only 315 days from the last coitus, so that the Gaskill case actually surpassed all records based upon calculation from coitus. It is to be remembered, however, that the respondent alleged that a menstrual period had occurred in the month following her husband's departure, or it may have been the second month after, she was not sure which. If, therefore, the plaintiff was the father of the child, the case is in one respect unique, and confirmatory evidence would be absolutely necessary before it could be accepted as an authentic instance deserving of a place in medical records.

In what direction can confirmation be sought in such a case? Are there any confirmatory facts of medical value which would apply if available? There are, undoubtedly, such facts to be found in the characters of the child at birth, and to a less extent in the nature of the confinement. We have seen that the weight of the child born at term varies widely; I have myself recently delivered a woman at the 278th calculated day of a child which weighed 10½ lb., and I was satisfied that the child was not post-mature. My own opinion is that the possibility of post-maturity should be entertained in the case of all children weighing 10 lb. and upwards at birth. There are other foetal characters, besides weight which might very well be taken into account, but their consideration would be tedious, and perhaps too technical for this occasion. I propose, therefore, to consider the weight only in this connexion.

It would be of great assistance if we knew exactly what is the average rate at which the foetus in utero increases in weight during the last few weeks of pregnancy, or when pregnancy is prolonged beyond its usual limits. Unfortunately we do not know, but there is very good reason to believe that it is variable within rather wide limits. I have a record of all the cases which I have myself attended in private practice in which the calculated period lay between 290 and 300 days; the weight of the child varied from 8½ lb. at one extreme to 12 lb. at the other, the average being 9½ lb. In my memorandum on the Gaskill case I cited six cases accepted as authentic in which the calculated period lay between 320 and 336 days, and

I should like to give them now as follows. It is not claimed that this list is exhaustive; the cases are quoted as illustrative of their class.

Author.	Period.	Weight of child.
1. Rosenfeld* (1884) ..	311 days	12½ lb.
2. Sprenkel* (1895) ..	312 ..	12½ lb.
3. Sprenkel* (1895) ..	320 ..	11½ lb.
4. Taussig (1901) ..	323 ..	12½ lb.
5. Brosin* (1888) ..	324 ..	12½ lb.
6. Bensinger (1893) ..	336 ..	13½ lb.

* Quoted by von Winckel.¹⁰

These figures of weight are remarkably consistent in that all are at the least 65 per cent. above the average weight at term; and the highest weight, 13½ lb., is nearly double the average weight. At the same time the variations are well marked, and the weight is evidently not determined only by the duration of gestation.

SIZE AND MATURITY.

Medical authorities have always attached great importance to the large size of the child as evidence of post-maturity. Simpson⁵ and Matthews Duncan¹¹ both clearly expressed this view in their time, and it is unnecessary to labour the point. I must, however, refer to a recently recorded case which appears to be inconsistent with this view. Hendry,⁹ of Liverpool, has recorded a case of which the following are the salient facts. After a prolonged absence, the husband, a soldier on active service, returned to his wife for the night of May 14th to 15th, 1917, and then rejoined his unit. In June the woman had what is described as a "flooding"; the date she could not recollect. The child was born on April 8th, 328 days after coitus; the labour was easy, and was attended by a midwife who did not weigh the child at birth. It was weighed at a clinic on the seventeenth day after birth at 7½ lb. In my opinion the case must be rejected on account of the size of the child, for I cannot find a case on record where the calculated period exceeded 320 days in which the child weighed less than 12 lb. Confirmatory evidence of the mother's story is totally wanting, and the size of the child is not consistent with it. When the circumstances of the case offer inducements for misrepresentation the necessity for obtaining confirmatory evidence is obvious. And we must not overlook the fact that during the hard years of the war the curtailment of recreation and freedom by the Defence of the Realm Act led people widely to seek compensation in greater freedom of sexual relationship.

If we reject Hendry's case the evidence is consistent that children born after the 320th calculated day are so large that attention would be at once attracted to their size, and labour would, generally speaking, though not perhaps invariably, be difficult and tedious. Judged by these standards, the Gaskill case cannot for a moment be accepted as an authentic instance of protracted gestation. The child was not weighed at birth. The medical attendant in his examination in chief stated that the child was large and the labour difficult. After the appearance of the medical evidence, if my memory serves me rightly, he was recalled and deposed that the child was very large, and that it was the most difficult forceps case he had ever had. Bearing in mind the influence of suggestion upon our subconscious mental processes we may continue to regret that no immediate note was made of the weight of the child. The duration of gestation in the Gaskill case calculated from coitus was 331 days, and from analogy of other recorded cases of 320 days or over, the child should have weighed about 13 lb. The mother was a primipara—i.e., it was her first child—and there would inevitably be the greatest difficulty in delivering her of a child of that size, while its enormous bulk would have attracted the attention of the female population of the entire neighbourhood.

I submit, in conclusion, that sufficient medical data have been accumulated to show that human pregnancy may be prolonged to a period of 336 calculated days, and that there is nothing in the meantime to show that even this figure is the outside limit beyond which prolongation of pregnancy is impossible. Further,

I submit that cases of prolongation of pregnancy beyond 320 calculated days are so rare that alleged instances should be very carefully scrutinised, and that confirmatory evidence should be forthcoming if they are to be accepted as authentic. The child would in all cases be much above the average weight of children born at term; moreover, the other bodily dimensions of the child, which have not been referred to in the paper, would be also much above the average. If such confirmatory evidence is wanting, and if the circumstances of the case offer inducements for misrepresentation, we as doctors would be obliged to reject the authenticity of the case. I hope this will not be understood as questioning the justice of the decision in the Gaskill case. I realise, of course, that that decision meant that the plaintiff had failed to establish his contention, and not that the defendant had succeeded in establishing hers.

References.

1. Dührssen: Centralblatt für Gynäkologie, 1893.
2. Spencer: Quoted by Simpson, loc. cit.
3. Cazeau and Tarnier: Theory and Practice of Obstetrics.
4. Reid: Quoted by Simpson, loc. cit.
5. Simpson: The Works of Sir J. Y. Simpson, vol. i.
6. Taussig: American Journal of Obstetrics, 1901, ii.
7. Whitridge Williams: Obstetrics.
8. Bensinger: Centralblatt für Gynäkologie, 1893.
9. Hendry: Proceedings of the Royal Society of Medicine, Section of Obstetrics and Gynaecology, October, 1921.
10. von Winckel: Klinische Vorträge, January, 1901, No. 29.
11. Duncan, Matthews: Fecundity, Fertility, and Sterility.

UNHEALTHY TONSILS ASSOCIATED WITH CERVICAL ADENITIS.

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SOME two years ago we published a short paper¹ on this question with a view to exploring the relationship which appears to exist between chronic enlargement of the palatine tonsils and cervical adenitis. The conclusions we arrived at were that cervical adenitis is frequently due to chronic septic absorption from the tonsils, that in addition, some 5 per cent. of enucleated tonsils show signs of infection by the tubercle bacilli and that this latter infection probably takes place in a tonsil already heavily charged with other pathogenic and saprophytic organisms. The present investigation was undertaken, therefore, in order to obtain, if possible, more definite experimental proof of the march of events than at present exists. The series of tonsils was obtained from the laryngologic department of St. Thomas's and Victoria Park Hospitals, and the operations were done by one of us (W. G. H.) by the method of enucleation described some years ago.² Well-marked cervical adenitis was present in all the cases.

Anatomy and Histology of the Tonsil.

The main histological features of the normal tonsil—if such a thing exists after the first few days of life (Davis³)—are well recognised and have been described in detail from the developmental and anatomical points of view by Barnes⁴ and others. From the present point of view the most important features of the histological picture are as follows: The fibrous capsule, the trabeculae of connective tissue, the covering of stratified squamous epithelium, the

crypts, the lymphoid tissue, the vascular supply, the lymphatics, and the mucous glands of the pharyngeal mucosa. In the careful description of the tonsil given by Barnes the author emphasises the fact that the tonsil lies in and not under the pharyngeal mucous membrane, and that it is in reality simply a complicated mucous membrane with lymphoid nodules developed in the more superficial fibres of its tunica propria. This point is probably important. The fact that the tonsil is thus separated from the surrounding tissues may explain why a chronic septic infection of the organ can remain so localised.

Before leaving this subject two points appear to us to need special emphasis, the crypts and the lymphatics. The crypts extend through the whole substance of the tonsil as far as the capsule; they are frequently branched and often open obliquely on to the free surface of the tonsil. They almost invariably contain debris of one sort or another, and are thus a very potent source of infection. The lymphatic vessels of the tonsil are still under discussion. Barnes states that no afferent lymphatic vessels have yet been demonstrated leading to the tonsils, though there are records of experiments (Lénart⁵ and Henke⁶) which show that colouring matter injected into the mucosa of the turbinate bones, and of the gums, may appear in the tonsil. The efferent lymphatics of the tonsil pass through the fibrous trabeculae and the capsule, and there unite into three to five trunks which pierce the buccopharyngeal fascia to go to the deep cervical glands, along with similar vessels from the base of the tongue.

For the purposes of our inquiry it has seemed advisable to investigate the morbid histology and the bacteriology separately.

Morbid Histology.

In the first place a series of 34 enlarged tonsils from cases with marked cervical adenitis were examined histologically. The following tissue changes were observed.

1. *Increase of Lymphoid Tissue.*—This was the commonest lesion noted. Some discussion has taken place as to whether or no this can be regarded as a true pathological change. In view of the fact that bacteria were found in some portion of the tonsil in every case examined, and that increase of lymphoid tissue in other parts of the lymphatic system is a direct reaction to infection, there seems to be little reason to doubt that the so-called hyperplasia of the lymphoid tissue of the tonsil is a pathological condition.

2. *Desquamation of Stratified Epithelium.*—This was commonly seen both on the free surface of the tonsil and in the crypts, and was generally found at points where invasion of bacteria had taken place.

3. *Cellular Infiltration.*—This occurred round small clusters of bacteria in various parts of the tonsil, notably in and beneath crypt epithelium, in connective tissue trabeculae, and free in the lumina of crypts. The cells concerned were lymph corpuscles and epithelioid cells. This cellular infiltration was, of course, not so extensive as it is in an acute follicular tonsillitis.

4. *Plugging of the Orifices of Crypts.*—Usually with cellular debris, mucus, and small masses of bacteria. Occasionally crypts become dilated so that they form cyst-like spaces lined with stratified epithelium, and may contain fibrin, lymphocytes, and stratified epithelium. At first sight these dilated crypts, when completely filled with degenerated cells and debris, superficially resemble patches of caseation. In one tonsil of our first series,¹ where there were giant cells near the crypt, this resemblance was striking.

5. *Increase of Connective Tissue in the Trabeculae.*—In these cases fibroblasts were numerous and the blood capillaries stood out clearly with connective tissue round them. These connective tissue changes were, however, not common.

Bacteriological Examination.

This series of tonsils was also examined for bacteria by the usual way of staining by Gram's method. Organisms were found in one portion or another of

every tonsil thus examined. Sometimes they were discretely arranged, at others they were in more or less solid masses. The bacteria were found in the following situations:—

1. On the free surface of the tonsil, and penetrating the stratified squamous epithelium. (Fig. 1.)
2. Together with mucus and degenerated cells plugging the orifices of crypts.
3. Lying free in the channel of the crypts. (Fig. 5.)
4. Penetrating crypt epithelium. (Fig. 5.)
5. Lying in the diffuse lymphoid tissue immediately beneath the crypt epithelium.
6. In the connective tissue trabeculae, generally within perivascular lymph vessels. (Fig. 3.)
7. In connective tissue between the bundles of muscle fibres of the palato-glossus and palato-pharyngeus muscles—i.e., outside the capsule of the tonsil. (Fig. 4.)
8. In one section lying within mucous glands.

It was noted that the bacteria, although frequently present in the diffuse lymphoid tissue lying immediately subjacent to the crypt epithelium, were not found in the lymph-nodes proper. Presumably if bacteria were carried there they were rapidly destroyed. Bacteria on reaching the tonsil appear to follow a definite path—viz., through the stratified epithelium (generally crypt epithelium), into the diffuse lymphoid tissue immediately beneath, and thence along the minute lymph channels of the trabeculae to the capsule, where they pass into the larger lymph vessels of the pharyngeal wall which go to the deep cervical glands.

Classification of the bacteria by means of their morphological appearance seen in sections was not possible. The organisms were roughly grouped as follows:—

	Cases.	Cases containing streptococci.
Cocci only	22	3
Bacilli and cocci	10	1
Actinomyces-like granules	1	—
Actinomyces-like granules and bacilli	1	—

The two cases showing actinomyces-like granules need separate description. The first was from a girl, aged 15, with pulmonary and abdominal tuberculosis, and the second was from a boy of the same age, both cases having discrete palpable glands. In the second case there were minute abscesses in the tonsil from which a mixed flora was cultivated (haemolytic and non-haemolytic streptococci, *Staphylococcus albus* and *aureus*, and *M. catarrhalis*). No granules were noted with the naked eye in either case, but in stained sections they appeared as darkly stained points about the size of a pin's head. In all the sections examined the fungus was seen to lie free in the lumen of the crypt, with a few leucocytes and desquamated epithelial cells around. No invasion of tonsillar tissue was noted, and no giant cells were seen. The fungus showed a tangled mass of filaments with cocci intermingled with them. At the periphery enlarged free ends of the filaments resembling actinomyces clubs were seen. All the elements stained well by Gram's method, but were not acid-fast.

These actinomyces-like fungi have been described by numerous writers, and the whole subject has been reviewed by Davis⁷ to whose paper we are indebted for a careful description of the parasite. He considers that the fungus is not a true actinomyces, but consists of a mass of fusiform bacilli, cocci, and spirilla in symbiosis, and finds that the fungus does not produce a true actinomyces culture on artificial media. The enlarged ends of the filaments which resemble true clubs are really central filaments with large numbers of bacilli clustered around, and Davis aptly likens this appearance to the bristles of a test-tube brush. He seems to imply that there may be some relationship between the elements of this actinomyces-like granule and the organisms of Vincent's angina. Unfortunately our two specimens were met with more or less accidentally in a series of tonsils devoted to histological study and therefore no cultures of the fungus were made, but the appearances in sections agree with Davis's description.

FIG. 1.

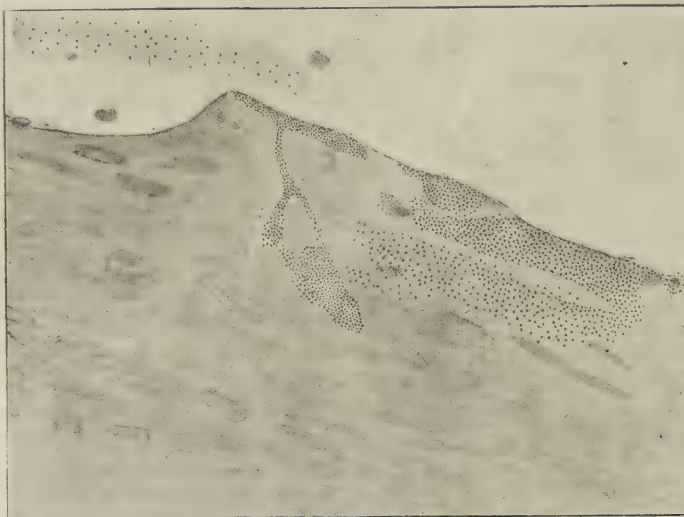
Masses of cocci in surface epithelium of tonsil ($\times 400$).

FIG. 2.

Actinomyces-like granule in lumen of crypt ($\times 20$).

No histological signs of tuberculosis were seen in this series of 34 tonsils, and only one case (one of the actinomyces patients) gave a clinical history of tuberculosis. It was interesting, therefore, to compare the findings with those recorded in our first published series of 100 cases examined solely from the point of view of tuberculosis. In this latter series five cases of tuberculosis of the tonsil were recorded out of the 100. Although a giant cell was very occasionally found in the surface epithelium or in the crypt epithelium, the majority of the giant cells seen in a large number of sections from these five positive cases were in the lymphoid tissue. (Fig. 6.) Sometimes these cells were found in the middle of a lymph-node, sometimes in the deeper part of the lymphoid tissue near the capsule, or alongside a trabecula, but, generally

speaking, they were in the diffuse lymphoid tissue subjacent to the crypt epithelium. It would seem, therefore, that the tubercle bacillus has a special affinity for the lymphoid tissue of the tonsil, as it has for lymphoid tissue elsewhere, and is rarely found in any other part of the organ; whereas pyogenic organisms are to be found in almost all parts of the tonsil except in the lymph-nodes proper.

Further Bacteriological Examination.

As it was impossible to classify the organisms from the morphological appearances in sections, two new series were examined. In the one all organisms cultivated, whether saprophytic or pathogenic, were examined, in the other virulence tests were made direct from the tonsils. In the first of these two series, agar and blood-agar plates, serum slopes, and broth-tubes were planted with secretion from (a) the crypts and (b) the cut surfaces of the bisected tonsil. The organisms found were as follows:—

Streptococcus	{ Haemolytic .. 16 }	..	38
	{ Non-haemolytic 22 }	..	..
<i>M. catarrhalis</i>	..	..	21
<i>Staphylococcus</i>	{ albus .. 8 }	..	19
	{ aureus .. 11 }	..	..
<i>Pneumococcus</i>	..	..	13
Unidentified bacteria	..	..	12
<i>B. influenzae</i>	..	..	7
<i>B. hoffmanni</i> and diphtheroids	..	..	5
<i>B. diphtheriae</i>	{ Virulent to guinea-pig 1 }	..	2
	{ Non-virulent .. 1 }	..	..
<i>Spirochaeta vincenti</i> and <i>B. fusiformis</i>	..	..	2
<i>B. coli</i>	..	..	1
Total	..	..	120

In almost every case the same bacterial flora was found in the crypts as on the cut surfaces. The two specimens of Vincent's angina were diagnosed on film preparations from minute abscesses opened up when the tonsil was bisected. It may be noted in passing that these minute abscesses are not uncommon. The organisms found in them in our different series varied—twice the organism of Vincent's angina, once actinomyces-like granules, and on other occasions a mixed flora including streptococci. In no case did an abscess contain tubercle bacilli. These small abscesses are doubtless caused by the plugging of the orifices of crypts and retention of infected debris.

Deducting the two organisms of Vincent's angina, which were not cultivated, 118 strains of bacteria were obtained from 33 tonsils, making an average of three strains for each tonsil. No single tonsil was found to be sterile, whilst the highest number of strains found in one tonsil was seven. The published records of other observers⁸ show a correspondingly wide range of bacterial species.

FIG. 3.

Cocci in perivascular lymphatics of connective tissue trabeculae ($\times 400$).

In the next series of 32 cases the tonsils were examined for pathogenic organisms only. Each tonsil was cut up into minute pieces with sterile scissors and an emulsion of tonsillar tissue made in saline solution. Half a cubic centimetre of this emulsion was then injected intraperitoneally into the mouse. In 14 cases (44 per cent.) there was no pathogenic effect, whilst in 18 (56 per cent.) the mouse died in 24-48 hours. From these latter cases 21 strains of bacteria were isolated from the peritoneal exudate. These organisms were as follows:—

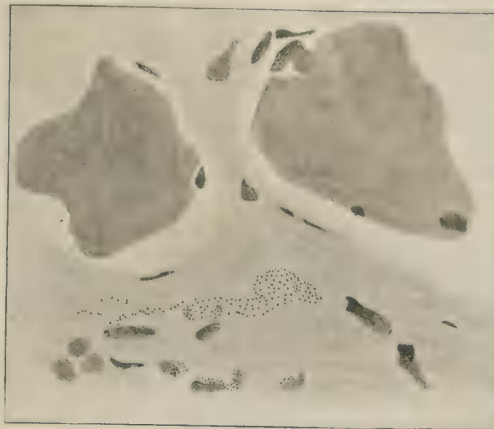
Streptococcus	{ Haemolytic .. 8 }	..	..	15
	{ Non-haemolytic 7 }			
Pneumococcus	{ Type I. ... 3 }	..	..	6
	{ Type IV. ... 3 }			
Total	..	..	..	21

These pneumococci were all bile soluble. The agglutinating sera for typing were supplied by the Wellcome Research Laboratories.

On the clinical side it was noted that in the 14 cases in which no pathogenic organisms were found in mice, the enlarged cervical glands were of the discrete variety; whereas in the 18 cases whose tonsillar emulsions proved fatal to mice five cases had greatly enlarged masses of glands, of which one case had recently had an attack of acute adenitis. Three of these five cases yielded non-haemolytic streptococci in the peritoneal exudate of mice, one a haemolytic streptococcus, and one a Type I. pneumococcus.

Finally, two other bacteriological questions were very briefly investigated—viz., (a) the presence of anaerobic organisms in tonsils and (b) the relative toxicity of the haemolytic streptococci. Plate cultures from the crypts and cut surfaces of eight tonsils were incubated anaerobically in a Bulloch's apparatus and showed no growth. Nine strains of haemolytic streptococci were injected intraperitoneally into mice, using graduated doses of 1, 1/2, 1/5, and 1/10 of an agar slope. Of these nine strains four killed in all doses, and two in all but the lowest dose, whilst the remaining three were only virulent in a full dose of one agar slope.

FIG. 4.



Cocci in connective tissue-strands between muscle fibres.
($\times 400$).

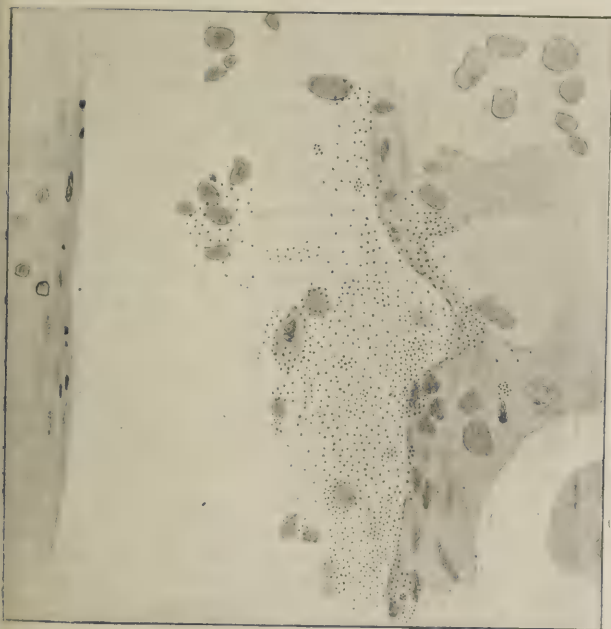
Summary of Results.

1. In the enlarged and unhealthy tonsils associated with cervical adenitis in children the chief histological changes noted were (a) marked increase in the lymphoid tissue, and (b) lesions in the crypts—desquamation of epithelial lining, plugging of the orifices, dilatation of lumen into cyst-like spaces, and occasionally the formation of minute abscesses.

2. Every tonsil examined showed evidence of bacterial infection. Many different species of organisms were found, the maximum number of species found in one tonsil being seven, the average number three. The streptococcus was the commonest species noted.

3. In a series of tonsils examined for the presence of pathogenic organisms, it was found that 56 per cent. possessed bacteria virulent for the mouse. These organisms were haemolytic and non-haemolytic strepto-

FIG. 5.



Cocci in lumen of crypt and invading crypt epithelium ($\times 400$).

FIG. 6.



Giant cells in lymphoid tissue ($\times 45$).

NOTE.—The drawings were made by one of us (S. R. G.) with the aid of camera lucida. In the case of the sections showing bacteria, they were made with 1/16" Leitz oil-immersion lens and then reduced to present size in the process of printing.

cocci, and pneumococci (Types I. and IV.). This pathogenic group of cases showed greater liability to the development of large masses of cervical glands (five out of 18) than did those cases of the non-pathogenic group (none out of 14).

4. The hæmolytic streptococci varied as to their virulence in the mouse.

5. Bacteria demonstrated in sections (chiefly cocci) showed that the infection tended to follow a definite path—viz., through the stratified epithelium (generally in the crypts, where it is thinner than on the surface) into the diffuse lymphoid tissue, thence along the minute lymphatics of the connective tissue trabeculae to the capsule, whence they passed to the lymph tracts of the pharyngeal wall.

6. In a separate series examined for tuberculosis it was found that the giant cells were generally in the lymphoid tissue, being rarely seen elsewhere.

7. In two cases actinomyces-like organisms were obtained, but there is reason to believe that they were not true ray fungi.

Conclusions.

It is said that the tonsils become infected with bacteria in the first few days after birth (Davis²); certainly in all our cases—children ranging from 2 to 15 years of age—infection was present, the line of march of the infection being illustrated in the drawings. In our series rather more than half of the children with enlarged and unhealthy tonsils associated with cervical adenitis harboured pathogenic organisms in their tonsils, the streptococcus being the commonest organism. On the other hand, tuberculosis was only found in about 5 per cent. of cases.¹

It seems probable, therefore, that tuberculosis is only a late infection, and that in the majority of cases the cervical adenitis is due to septic absorption from tonsils containing pyogenic organisms such as the streptococcus. This view is borne out by the fact that when the infected tonsils are removed by operation the affected glands frequently subside.

We are indebted to Mr. A. W. Smart, chief laboratory assistant, for help with this work, the expenses of which were defrayed by a grant from the Medical Research Council.

References.

1. Howarth, W. G., and Gloyne, S. R.: THE LANCET, 1921, ii., 997.
2. Howarth, W. G.: THE LANCET, 1916, ii., 600.
3. Davis, D. J.: Jour. of Infect. Diseases, 1912, x., 142.
4. Barnes, H. A.: The Tonsils, Fauces, Lingual, and Pharyngeal, 1914.
5. Lénart, Z.: Archiv. f. Laryngologie, 1909, xxi., 463.
6. Henke, F.: Archiv. f. Laryngologie, 1914, xxviii., 231.
7. Davis: Jour. of Infect. Diseases, 1914, xiv., 144.
8. Davis: Ibid., 1912, x., 148. Dwyer, I. G., and Gignouk, Manhattan Eye, Ear, and Throat Hospital, Reports, February, 1914, No. xiii. (quoted by Barnes in The Tonsils, Fauces, Lingual, and Pharyngeal, 1914). Wall, Nellie: Brit. Med. Jour., 1922, ii., 1025.

THE ÆTIOLOGY OF INDIRECT INGUINAL HERNIA.

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BEFORE any of the internal viscera can be protruded through the abdominal wall, there must be an increase of intra-abdominal pressure together with a weak spot in the wall itself. The inguinal region is a favourite site for the development of hernia, which is sometimes attributed to the weakness caused by the passage of the cord through the abdominal muscles, but this is more apparent than real.

Theories of Causation.

Of the numerous theories put forward to account for the formation of inguinal hernia, those based upon some abnormal intra-abdominal condition or some unusual weakness of the inguinal region are generally applicable, since hernia is as common among the

well-developed as the poorly-developed, and is associated with no particular type of abdomen. The congenital saccular theory of Mr. Hamilton Russell, based upon anatomical and pathological findings and supported by the result of excision of the sac, is to-day accepted by most surgeons. Some, however, declare that by this theory no explanation is forthcoming for the delay in the development until puberty or later, and that, following the sudden descent of the bowel into such a sac, some symptoms of strangulation with bruising and tenderness would certainly be present. Consequently, though it might account for the acute and subacute forms, no explanation could be put forward for the so-called symptomless form, where a reducible hernia arises often after some trivial accident, the only symptom being a feeling of something giving way or a fleeting pain. Considerable divergence of opinion has existed in the past over the possibility of this symptomless form, and many have contended that such an onset is impossible and that the accident has served merely to draw attention to a previously existing hernia.

For some years the writer has given special attention to the history of hernia cases, and has come to the conclusion that a symptomless onset is not uncommon at any age. In children the sudden descent of the bowel into the scrotum without strangulation or bruising is often seen. During the recent war such an onset was frequent, and many of the men were of good development. In some it occurred soon after enlistment, in others only after service abroad, the apparent cause being a slip at drill or a stumble in the trenches. As the hernial regions were carefully examined at the medical inspections, the probability of a gradual onset can be excluded. Two men of the battalion to which I was attached in Gallipoli developed hernia shortly after a medical inspection held by me. In each there was a slip while carrying a load; there was no nausea or vomiting, and the hernia, which was not tender, could be easily reduced. Such a history is not uncommon in civilian practice when no question of compensation arises, and seems absurd that it should always be discredited because at times a hernia is wrongly attributed to an accident. It is surely more in keeping with scientific principles to face facts and to endeavour to find some explanation, rather than to dismiss them as resulting from inaccurate observation.

Anatomy of the Inguinal Region.

The absence of marked symptoms and a delayed onset are quite consistent with the saccular theory, and it is mainly with this aspect of hernia that this paper deals; but before proceeding to study the mechanism of hernia, some points in the anatomy of the inguinal region and in the relation of the abdominal wall to intra-abdominal pressure will first be noted.

The Inguinal Canal.—This is a potential space normally filled by the spermatic cord, and, as the internal and external rings are not exactly opposite it has a valvular arrangement. The walls are not adherent to one another or to the coverings of the cord. The fascia transversalis, which is prolonged over the cord at the internal ring, has here a funnel-like appearance, and its margin is not sharply defined. Immediately above and in front lie the curved muscular fibres of the internal oblique and transversalis, which on contracting become opposed to Poupart's ligament and act as a sphincter to control the internal ring, compression of the spermatic vessels being prevented by the downward convexity of Poupart's ligament. That this is the action of the muscle can be shown by allowing the patient to cough or by electrical stimulation of the nerve when the canal is exposed during herniotomy; that it is intermittent is indicated by the muscularity of the fibres.

The contents of the cord are bound together by lamellæ of areolar tissue, the coverings are loose, and the spermatic vessels are tortuous and branch obliquely. In the foetus the processus vaginalis is present, but normally it should become obliterated soon after birth. Occasionally it remains patent throughout life, an

may retain its connexion with the tunica vaginalis or be obliterated at any point between this and the internal ring. Mr. R. W. Murray has shown that in such cases the bowel may never enter the sac. In anatomical and pathological dissections such sacs are narrow and are compressed by the surrounding tissues, but such an appearance is due to secondary hardening of the tissues and is not an accurate picture of the condition present in the living. When they are found during operations for varicocele, &c., with no history or signs of hernia, the finger can be passed, without meeting any serious resistance, into the peritoneal cavity. Such a sac lying among structures loosely bound together does not penetrate the belly of any muscle, but lies in the intermuscular plane, an important point in the symptomatology, since intermuscular tension, unless severe, rarely gives rise to pain.

Relation of the Abdominal Wall to Intra-Abdominal Pressure.—There is normally room in the peritoneal cavity for all the viscera. The slight pressure upon the walls due to gravity may be raised by the descent of the diaphragm or by the contraction of the abdominal muscles. At such times the protrusion of the viscera is prevented by the resistance of the peritoneum and fascia, supported when necessary by the action of the overlying muscles. When the diaphragm descends, the canal is protected by its valvular arrangement, and by the action of the inguinal sphincter when the abdominal muscles contract. With inspiration, the pressure, which is at first directed downwards and then downwards and outwards, closes the canal from within outwards. As the force of compression of the posterior against the anterior wall of the canal is always equal to the pressure upon the internal ring, there will be no tendency for the viscera to protrude.

The Mechanism of Hernia.

In the first place, the inguinal sphincter being a part of the abdominal musculature, its contraction is synchronous with theirs; and, as the rise of pressure is secondary to the action of these muscles, it is obvious that the internal ring is protected by the contraction of the sphincter before any strain is put upon it. The development of the sphincter being proportionate to that of the abdominal muscles, and the rise of pressure dependent upon the force of their contraction, any muscular effort which endangers the canal will be resisted by a force in direct proportion to the effort expended. It is, however, possible that during some severe or prolonged strain the sphincter may be overcome and the internal ring exposed to the pressure above.

The carrying out without injury of great ranges of movement, which is well seen in the spine with its complicated arrangement of ligaments and joints, is made possible by a perfect involuntary muscular coördination; as a result there is a defensive contraction of the muscles when any strain is placed upon the underlying ligaments. Yet a slight slip may cause a severe sprain, owing to the suddenness of the movement leading to incoördination of the muscles and to the consequent excessive stretching of the ligaments. Now the strength of the inguinal canal is largely dependent upon the action of the neighbouring muscles, which may become incoördinated here as elsewhere. For instance, when a weight is lifted from the ground, the legs are firmly fixed, the abdominal muscles contract, and the internal ring is protected by the sphincter. The giving way of either leg might lead to incoördination of the muscles, and consequently to relaxation or irregular contraction of the sphincter at a time when the abdominal pressure is raised.

The internal ring will be exposed to pressure from above, only if the latter is sufficiently severe to overcome the sphincter, or if some incoördinated action of the inguinal muscles takes place. Such an exposure is only momentary, and normally would not be followed by protrusion of the viscera, since sudden stretching of the peritoneum is unlikely. But with a persistent patent funicular process present, the bowel might enter the sac provided it was at the

time situated over the orifice. The point at which it would be arrested would be the apex of the sac, though possibly at the external ring if it were small; the loosely bound structures surrounding the sac would offer little resistance to its descent.

Symptoms of Onset.—The introduction of the finger into the inguinal canal gives rise to little discomfort, and, as bowel and omentum are freely movable in the abdominal cavity, their passage into the canal cannot in itself give rise to pain or other symptoms. These could arise only from interference with their function, from some alteration in the surrounding structures such as distension of the sac and stretching of the muscles or fascia, or from tearing of the tissues. Both bowel and omentum are insensitive to pressure unless it is sufficiently severe to interfere with their function or nutrition when symptoms of strangulation are present. Traction upon the mesentery may lead to faintness and nausea.

The funicular process is homologous with the peritoneum and tunica vaginalis, and probably possesses similar sensitiveness. Though dragging upon or nipping of these structures gives rise to pain, distension such as is seen in large hydroceles or in marked ascites causes little discomfort. When the bowel enters the sac it is in contact with a surface similar in every respect to that lining the abdominal cavity, no inflammation is set up, and pain is present only if the distension is sufficient to produce dragging upon the parietal peritoneum. Of the surrounding structures, the coverings of the cord are loose, and the fibres run longitudinally; stretching would be counteracted by a pulling upwards of the testis. The only place where tension is likely to arise is at the aperture in the fascia transversalis; but this, if small, will constrict the bowel and cause strangulation. The vessels are tortuous and the branches, which are given off obliquely, are not ruptured, and there will be no hæmorrhage.

From the above points, based upon anatomical and pathological considerations, it is seen that, as the inguinal canal is very efficiently protected from pressure acting from within the abdomen, the presence of a persistent patent funicular process does not signify that a hernia must necessarily form. This would take place only if the internal ring were exposed at a time when the intra-abdominal pressure was raised, which might follow some severe effort or a trivial accident leading to incoördination of the neighbouring muscles. Bruising is not to be expected, and the severity of the symptoms will depend upon the size of the aperture in the fascia transversalis; this, if small leads to strangulation of the bowel, but if large the only symptoms present might be a feeling of something giving way or a passing pain. An onset, symptomless and perhaps delayed until puberty or later, is therefore not inconsistent with the saccular theory, by which alone can other points in the ætiology of hernia be explained. The question is too large to be discussed in this paper, and I shall choose one that has been of much interest to me—namely, the possibility of the cure of hernia by the wearing of a truss.

Possibility of Cure by Truss.

Hernia other than in infants can be cured only by removal of the sac. As this has been present from birth, and as the exciting cause of hernia is some temporary incoördination of the inguinal muscles, it might be assumed that, following its immediate reduction, control over the canal would be regained. This is not the case, for recurrence of the hernia is certain, though it may be delayed for a few months. The reason is that before the descent of the bowel the orifice of the sac was on a level with the surrounding peritoneum, and the sides were in contact partly from a natural tendency to adhere, partly from the support of the neighbouring tissues. Once the hernia has formed, the orifice gapes and becomes shelved towards the canal, which is further weakened by the temporary paresis of the sphincter that follows its stretching; and a condition favourable to the descent of the bowel is now present. Up to the age of 2 the wearing of a

truss may lead to a cure if the hernia is kept continuously reduced, due in all probability to the tendency for the funicular process to undergo its normal evolution at this period. Often such a cure is only apparent and the hernia recurs later in life. In children an apparent cure is sometimes seen, in adults it is rare. This can be explained by the fact that in babies a rubber truss is quite efficient; the pressure it exerts is very slight, and with the tendency for the tissues to undergo their normal development, a condition of the inguinal region arises similar to that seen in a child where the cord contains a congenital sac into which the bowel has never descended. In children and adults a spring truss must be worn, the constant pressure of which leads to atrophy of the underlying muscles, as a result of which the sphincter will never be sufficiently strong to resist any great pressure from above, and the control over the canal will always be imperfect.

Operation and Recurrence.

The strength of the inguinal region depends upon the normal development and an unimpaired action of the neighbouring muscles. As in hernia there is no primary weakness, a permanent cure should follow the removal of the sac. Recurrences, however, are not infrequent, and the large number of operations which have been described bear witness to this. They are, in my opinion, due to want of attention to the development of the inguinal muscles, to failure to suture the incision in the fascia, or to the abuse of trusses.

The wearing of a truss, except in babies, is a purely palliative procedure, and by causing atrophy of the muscles may do much harm. After the age of 2 an operation should be performed as soon as possible; if its postponement is necessary, a truss with only a light spring will do the least harm. During the operation the incision in the internal spermatic fascia may be prolonged into the fascia transversalis. At the aperture so formed the peritoneum comes in contact with the external oblique and may become adherent to it. When the abdominal pressure is raised by the descent of the diaphragm the resistance of the fascia is wanting at this spot; and when raised by contraction of the abdominal muscles, the adhesions may interfere with the action of the sphincter. The incision in the fascia should always be carefully sutured, leaving just sufficient room for the passage of the cord. Following the operation it is essential that the muscles should be brought fully and powerfully into play immediately any strain is thrown upon the inguinal region. Voluntary exercises and electrical stimulation should be instituted to overcome the pre-operative wasting, which will certainly be present if the hernia has existed for some time, or if a truss has been worn, and also to prevent the post-operative wasting which follows disuse and the formation of adhesions. In the operation recommended by Mr. Philip Turner the incision in the external oblique is not prolonged into the external ring, and the early contraction of the external oblique will do no harm since the pull will be in the line of and not across the incision. After the operation for inguinal hernia voluntary exercises should be commenced on the fifth day and the patient should be up on the seventh, unless some plastic operation to overcome any secondary weakness has been performed, when a longer convalescence is advisable.

THE LATE DR. JOHN PENN MILTON.—The death occurred on May 21st of Dr. John Penn Milton, who since the opening of the East Sussex County Council Sanatorium at Darvell, Robertsbridge, in May, 1921, had been medical superintendent. He was 51 years of age, and he died from disease contracted during the war, in which he served on several fronts. He was a son of Mr. J. P. Milton, a Penzance solicitor, and in his young days was champion swimmer of the West of England and golf champion of Cornwall and Devon. Studying medicine at King's College Hospital he became M.R.C.S. and L.R.C.P. in 1898, and was appointed medical superintendent of the sanatorium at Hawkwood, and tuberculosis officer under the Devon county council. He was a recognised authority on tuberculosis.

A NOTE ON DRUG THERAPY IN DISSEMINATED SCLEROSIS.

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ALL those who have watched the course of this malady will not be inclined to disagree with the statement that it stands as almost the most tragic of all diseases. In the first place, it affects the individual in the early prime of his life. Its commencement is often trivial, and the first attack of the disease is commonly regarded as "influenza—followed by a touch of neuritis." Soon, however, another attack, followed by an additional nervous lesion, supervenes, and with the appearance of still further attacks the diagnosis of disseminated sclerosis becomes established. The history of a series of such attacks one may almost say is diagnostic of the disease. Each attack may consist simply of a slight rise in temperature and a general feeling of malaise; others may be more severe, accompanied by headache, vomiting, and more rarely a convulsion. But whether mild or severe, each attack heralds the formation of a patch of sclerosis in the central nervous system. And the position the particular patch or patches of sclerosis occupy in the nervous system decides the character of the set of symptoms which immediately supervene. Thus a patch of sclerosis in the internal capsule will lead to a hemi- or monoplegia; in the parietal cortex to asternognosis; in the cerebellum to ataxia; in the mid-brain to oculomotor palsy and nystagmus; and, finally, in the medulla to spastic paresis of the limbs and trouble with speech.

If the early history in this disease is almost diagnostic, the same can be said with equal truth of the subsequent history. For after the immediate inflammatory reaction round each patch of sclerosis has subsided, the permanent damage remaining is frequently slight. Accordingly, steady improvement in the symptoms occurs after each pyrexial attack, so that marked remissions in the course of the disease are the rule, and must be expected. In the earliest stages of the disease the case is frequently regarded as one of hysteria—the sudden appearance of somewhat anomalous nervous symptoms, which ultimately almost clear up, being held as sufficient reason for this diagnosis. But if the possibility of disseminated sclerosis is kept in mind, this error should not be long sustained, for in spite of the apparently dramatic remissions which occur, definite chronic changes are all the time taking place in the nervous system, and these changes careful clinical examination will reveal. Once these chronic degenerative lesions are fully established, no treatment is of much avail. To produce any real result it is necessary to recognise the disease in its earliest stages and—if such a thing is possible—put an end to the series of harmful pyrexial attacks which indicate formation of new plaques of sclerosis.

Early Diagnosis.

Within the last two years ten early cases have come under my notice. In each case it had been noticed by the patient's doctor that complete recovery had not followed the so-called influenzal attacks, and the presence of certain symptoms had aroused grave suspicion. Brief notes of some of the cases are as follows:—

CASE 1.—Male, aged 32, woke up one morning with a numb feeling in the right leg; got out of bed and found putting his bare feet on the cold oilcloth produced no sensation of cold. He had been suffering from a chill for several days. There had been a similar condition in the left leg about two years previously. Walking was slightly difficult, legs tired easily, right leg dragged; cramps in the legs and frequent "tickling sensations in both feet." Some precipitancy of micturition. On examination there was clear evidence of a spastic paresis with altered reflexes on

the right side. Cranial nerves normal. Loss of sensation to hot and cold and pin prick on the right side below ninth dorsal segment. These symptoms improved in two or three weeks, at the end of which time I re-examined him. The sensory loss had disappeared almost completely—a feature in itself significant of disseminated sclerosis. Ten months later he had a sudden illness with shivering, headache, and diarrhoea—accompanied by cramp and numbness in the right leg. At this time, in addition to the right hemiparesis, there appeared slight nystagmus.

CASE 2.—Female aged 32. Two and a half years ago had a severe attack of so-called "influenza," after which she noticed the right leg became weak and she had to use a stick for getting about. Following another attack the legs became numb and there was frequency and precipitancy of micturition. On examination there was definite coarse nystagmus; slight spastic paresis of both legs also present.

CASE 3.—Female, aged 24, suddenly noticed stiffness in right arm and a numb feeling in hand. Four months previously she had had a temporary mistiness of vision affecting both eyes. Shortly after this the right leg had become stiff and weak, but rapidly improved again. Also about this time the right eye turned inwards for a short time and caused diplopia.

I do not suggest for a moment that the diagnosis of disseminated sclerosis should ever be precipitately made. The case must be carefully watched and the diagnosis deferred until sufficient clinical evidence is forthcoming. At the same time, valuable time in which treatment should be commenced must not be lost.

At this point it would be useful to summarise the main points in the early diagnosis of the disease. I would place them as follows: (1) The occurrence of repeated pyrexial attacks followed by groups of nervous symptoms which tend to improve in a few weeks; (2) age of onset (*viz.*, the young adult); (3) certain nervous symptoms—chief amongst them being slight nystagmus, temporary diplopia, paresthesia of a fleeting character, blurred speech, evidence of spastic paralysis (*e.g.*, absent or diminished abdominal reflex on one or both sides), exaggerated deep tendon reflexes with extensor plantar reflex on one or both sides—any or all of which symptoms may be transient; (4) negative Wassermann reaction; (5) a paretic type of curve with the colloidal gold reaction—this being, in my experience, an inconstant phenomenon.

Review of Methods of Treatment.

Before turning to a short review of the methods of treatment which have been advocated, it is important for us to realise that, owing to the marked remissions which occur naturally in the disease, we must beware of the probability of such a remission of symptoms coinciding with the commencement of a particular line of treatment. One cannot help feeling that in this coincidence lies the explanation of the claimed success for numerous forms of treatment—forms which include a lengthy list of drugs, also vaccine therapy, injections of fibrolysin, &c. Of drugs, the following have been advocated and given extensive trials: Arsenic, zinc sulphate, iodides, mercury, silver nitrate, quinine, salicin, and lastly, cod-liver oil—a notley list. An interesting commentary on this list is provided by Oppenheim's statement that poisoning by lead, arsenic, and mercury may even predispose to the disease. The stalwarts of homoeopathy might well seize on this instance for their own advancement, in the article on disseminated sclerosis in Clifford Allbutt's "System of Medicine" the position is summed up in the following terse statement: "The therapeutic prospects in disseminated sclerosis are gloomy in the extreme." And, indeed, there can be little doubt that the success which has been attributed to certain remedies is mainly due (1) to the remissions which independently occur in the disease, and (2) to the dissipation of certain hysterical aggravations of the organic symptoms—as has been insisted on by Dr. A. F. Hurst. Active suggestion in such cases will produce more defined and more complete improvement than any drug.

The Infective Virus.

Let us consider for a moment what our aim is in the struggle with this disorder. It is clear that very little improvement can be hoped for once the nervous system has become riddled with small patches of sclerosis. A form of treatment is needed which will grapple with the virus and stem its advance in the early stages of the disease. From this point of view it seemed at one time that treatment with some form of vaccine would successfully curtail the disorder. Accordingly, autogenous vaccines from micro-organisms obtained from various infected sources in the body (more especially from the alimentary and genito-urinary tracts) have been used—the assumption being that the toxins of such organisms circulating in the blood lead to disseminated inflammation in the nervous system. I have a fear, however—which may not perhaps be altogether justified—that the use of vaccines in disseminated sclerosis is not altogether free from serious risk.

The fact is that we are still in the dark as to the exact nature of the virus. We know that its lesions are confined to the nervous system, wherein it differs widely from the virus of syphilis. Within the past few years a spirochaete has been isolated from the cerebro-spinal fluid of patients dying of the disease, but more recent investigation still has failed to confirm this observation. One attempt which was made last year in conjunction with the late Dr. Eastwood—the cerebro-spinal fluid taken from a patient during an acute attack—failed to produce any effect whatever when introduced into the anterior chamber of the eye of a rabbit. To all appearances the fluid was non-irritating, non-infective, and non-toxic.

Recent Experience with Arsenical Preparations.

The course and character of the disease, however, point very strongly to the presence of an infective causative agent. Clinical experience over many years pays tribute to the value of arsenic when given over a long period. After the introduction of intensive arsenical treatment for syphilis it was only natural that it should be suggested that such intensive treatment would be of use in disseminated sclerosis. During the past two years I have used this treatment in all the early cases of disseminated sclerosis which have come under my notice. They number in all ten cases. The procedure has been a course of six weekly intravenous injections of novarsenobillon (0.15, 0.3, 0.45, 0.45, 0.6, 0.6), which is repeated at the end of six months. In the interval and for a year subsequent to the second course of injections, the patient is given arsenic by the mouth in the following manner: He is told to take a mixture containing 3 minims of liq. arsenicalis three times a day during alternate fortnights. This is as recommended by Dr. Farquhar Buzzard.

It is necessary to take the usual precautions in examining the patient before the first injection of salvarsan is given. In my series of cases I have not met with any untoward effect as the result of the injections. That seems to me to be by no means a negligible point in their favour; they produce no harm similar to the provocative reaction occasionally seen in the treatment of neurosyphilis. As to the amount of good they do, my experience so far has been hopeful. There has seemed to be a definite effect produced in all cases on the number and the severity of the attacks of relapses in the disease. Only two cases have continued to progress unfavourably—in the remainder the active infective process seems to be held and no further symptoms have developed.

To draw conclusions from such a short series of cases and over such a short period would not be justifiable. But in a disease where all other forms of treatment leave us with a feeling of helplessness it has been a hopeful proceeding to meet with one form which seems to exert some action towards the definite arresting of the pathological process. This note is given in the hope that others may use similar treatment and later compare results.

HYPERTHYROIDISM AS A CAUSE OF SEVERE UTERINE HÆMORRHAGE FOLLOWING MINOR VAGINAL OPERATIONS.

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IN THE LANCET of March 18th, 1922 (p. 530), a paper was published by Sir John Phillips describing four cases in which severe uterine hæmorrhage followed minor vaginal operations. At the time I was engaged with Dr. C. M. Wilson in an attempt to establish hyperthyroidism as a cause of so-called "functional" menorrhagia by measurement of the basal metabolic rate. Our work, which has since been published, furnished evidence that most cases of menorrhagia in young adults without physical signs in the pelvis are associated with hyperthyroidism as measured by the basal metabolic rate. By the use of an exact method we sought to prove not only the presence but also the exact degree of hyperthyroidism.

While reading Sir John Phillips's paper, though I had no personal experience of the condition he described, I was impressed by the possibility of hyperthyroidism being the cause of these apparently unexplained hæmorrhages, not only because I was, at the time, considering uterine hæmorrhage from the thyroid point of view, but also because the first case detailed by Sir John Phillips developed Graves's disease some 15 years after the attack of hæmorrhage. My interest in the subject was reawakened recently by coming into contact with a case of severe hæmorrhage, such as Sir John Phillips describes, in which Dr. Wilson has demonstrated a pathological degree of hyperthyroidism by his measurement of the basal metabolic rate.

The details of the case are as follows:—

The patient complained of dyspareunia since marriage a year ago. On examination her pain was found to be partly due to a tight hymen, and partly to prolapsed ovaries and retroverted tender uterus. The patient was emotional, easily prone to exaltation or depression, and distressed by the possibility of childlessness. On Dec. 9th, 1922, I removed the hymen, enlarged the vaginal orifice by a short posterior incision, and suspended the uterus and ovaries by shortening their respective ligaments. The uterus was not dilated or curetted. Menstruation had finished a few days before the operation was done.

There was no trouble until the morning of the fourth day, about 10 A.M., when suddenly I was urgently sent for on account of a severe hæmorrhage escaping from the vagina. On arrival, within an hour from the onset, I found the patient pallid and anxious, with an increased pulse-rate, and a large quantity of blood-clot on the bed. There was still free bleeding and it was considered necessary to plug the uterus immediately. Under anaesthesia a speculum was passed and the small perineal wound was carefully inspected and found to be quite dry and healing satisfactorily. The vagina was full of clot, and after clearing this away blood was seen issuing from the closed os. The cervix was thereupon dilated with Hegar's dilators, and the uterine cavity tightly packed with gauze. This was followed by a hypodermic injection of "femergin" and administration of saline by rectum.

The plug was removed the next morning, but there was no further bleeding either then or at a later date during the convalescence. Suspecting a thyroid origin for this unexplained hæmorrhage, I asked Dr. Wilson to measure the basal metabolism. On Feb. 21st, 1923, he found it to be +18 per cent., and a repeated measurement on the 24th gave +18.5 per cent.

In a previous paper¹ we have shown that "functional" menorrhagia is very commonly associated with a basal metabolism reading of from +16 per cent. to +25 per cent., which we have ventured to accept as evidence of at least an association and possibly a causal relationship between hyperthyroidism and this variety of uterine hæmorrhage. In addition to the sudden bout of hæmorrhage described above, this

patient has suffered from irregular and profuse menstruation, sometimes lasting for two weeks in each month, since July, 1922. A possible explanation of the post-operative hæmorrhage is that the anticipation and dread of an operation, amounting to a state of fright, reacted on the thyroid, already in an unstable condition, stimulating it to an excessive or aberrant activity.

POST-MORTEM FINDINGS IN TWO CASES OF HYDROCYANIC ACID GAS POISONING.

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AFTER fumigation of a ship with hydrocyanic acid gas the hatches and ports are opened and the gas allowed to escape. When a certain period has elapsed a clearing gang goes through the ship to disconnect the gas-producing apparatus and to perform various other duties. These men are equipped with gas-masks, oxygen reservoirs, and cages of rats and mice. On the occasion of the fumigation of a large liner at Southampton on July 30th, 1922, two of the men in the clearing gang were fatally gassed. I performed post-mortem examinations upon them in the presence of other medical men on August 1st at the Royal South Hants and Southampton Hospital.

The circumstances of and facts concerning these cases are of great interest from clinical, industrial, public health, and medico-legal points of view. I understand, however, that a memorandum of the cases will be included in a paper on fumigation with HCN shortly to be published, and I therefore restrict this report to an account of the post-mortem findings, which it is desirable to place on record in view of the comparative paucity of definite information at present available on the subject in medical literature.

The reports of the autopsies are tabulated side by side to make more clear the strict parallelism of the conditions observed.

W. C., male, aged 40.

Extreme lividity over face, neck, upper half of trunk and all dependent parts of the rest of the body and limbs. Colour a vivid delphinium blue. Nails blue.

No odour of HCN perceptible before the body was opened.

Body and limbs rigid.

Pupils dilated, but not widely. Chemosis and injection of conjunctivæ, which were deep pink in colour.

Extensive separation of corium over upper half of thorax in front, and one or two blisters containing clear, very faintly pink-coloured serous fluid on trunk and scrotum. Penis and right scrotum much swollen. This swelling was due to gas in loose connective tissue of penis and scrotum, and in the right tunica vaginalis. On cutting into these structures the gas escaped, smelling strongly of HCN, and the swelling entirely subsided. No hernia or patent inguinal canal found.

Abdomen tensely distended and tympanitic. On incision into peritoneal cavity, which contained no fluid, gas escaped under considerable pressure. This gas smelt of HCN, but did not smell putrefactive.

Intestines were of a distinct pink colour, and distended with gas. When the small intestine was incised a smell of HCN was apparent. This was not perceived when the large bowel was opened.

A. C. O., male, aged 45.

Intense lividity of face and neck, the colour being the same as in the case of W. C. All dependent parts of body pink. Nails blue.

No odour of HCN perceptible before the body was opened.

Body and limbs rigid.

Pupils dilated, but not widely. There were chemosis and injection of conjunctivæ, which were pink in colour.

Subject well covered with subcutaneous fat; fat also abundant in omentum, mesentery, and perinephric regions.

Abdomen tensely distended and tympanitic. On opening the peritoneal cavity gas escaped under considerable pressure and emitted a strong odour of HCN. No free fluid in peritoneal cavity.

Intestines were pink in colour and distended with gas. No smell of HCN was observed on opening either the small or the large bowel.

¹ Wilson, C. M., and Bourne, A. W., THE LANCET, 1922, i., 1038.

W. C., male (*continued*).

Stomach pink in colour, and contained partially digested plums; no odour of HCN noticeable on opening. In region of the fundus posteriorly, a considerable extravasation of blood into tissues of stomach-wall.

Liver slightly cirrhotic, small, and of a uniform deep blue-green colour.

Kidneys were livid and engorged.

Suprarenals very soft and degenerate.

Spleen engorged with dark blood, and a small spleniculus was present.

Pancreas appeared normal. Bladder half-full of urine, which did not smell of HCN.

On opening pleural cavities, a distinct smell of HCN.

On opening pericardium, a noticeable smell of HCN.

Valves of heart normal. Right side of heart engorged; endocardium pink, myocardium flabby.

Aorta appeared healthy throughout, but showed bright pink staining.

Mucous membrane of mouth, tongue, pharynx, oesophagus, larynx, trachea and bronchi engorged and livid. Slight oedema of vocal cords. No mucus seen in trachea. Lower third of oesophagus distended with semi-digested plums.

Lungs intensely engorged with dark blood; smell of HCN on section.

Over right occipito-parietal region a contusion with slight extravasation of blood into tissues of scalp. No fracture seen.

Grey matter of brain, especially basal ganglia, stained a deep clear green (sage-green) colour. White matter had a faint bluish tinge, grey matter showing up against it in most distinct and beautiful demarcation.

On section into lateral ventricles a marked smell of HCN. A stronger smell of gas than in any other part of body; estimated as stronger than that experienced on smelling a bottle of the B.P. acid.

In both cases marked absence of putrefaction; absence of putrefactive odour of gases and organs; absence of ordinary post-mortem discolorations. Blood from lungs examined, and a spectrum corresponding to that of cyanhamatin obtained. Fluid from lateral ventricles, and scrapings from walls of lateral ventricles, portions of optic thalami, lungs, and liver examined chemically and yielded positive results to tests for cyanides.

It seems worth while to emphasise the outstanding features which are common to both cases—viz.: Absence of smell of HCN before opening the body, and absence of this smell from the urine; gaseous distension of peritoneal cavity and of intestines; smell of HCN in all serous cavities; concentration of smell of HCN in lateral ventricles; intensity and precise colour of facial lividity; blue nails; pink colour of intestines and gastric mucosa; bright pink staining of intima of the aorta; uniform blue-green colour of the liver; green colour of grey matter of the brain; colour and chemosis of the conjunctivæ; lividity and engorgement of buccal, pharyngeal, oesophageal, and respiratory mucous membranes; extravasation of blood into the tissues of the stomach-

A. C. O., male (*continued*).

Stomach almost empty; mucosa bright pink in colour. Strong odour of HCN on opening. An extensive extravasation of blood into tissues of stomach-wall in region of the fundus posteriorly.

Liver a uniform deep blue-green colour except for slight mottling with yellow over portions of surface, where there was a slight superficial hepatitis.

Kidneys injected and slightly granular.

Suprarenals appeared normal.

Spleen enlarged and engorged with dark blood, and presented one small superficial scar.

Pancreas appeared normal. Bladder about one-third full of urine, which did not smell of HCN.

On opening pleural cavities, a distinct smell of HCN. Extensive old pleural adhesions on both sides.

On opening pericardium, a noticeable smell of HCN.

Right side of heart slightly engorged, left side empty; endocardium was normal in colour; very slight sclerosis of mitral valves; myocardium flabby.

Aorta appeared healthy throughout, but was stained a very bright pink.

Mucous membrane of mouth, tongue, pharynx and oesophagus engorged and livid. Larynx, trachea, and bronchi injected; slight oedema of vocal cords. Larynx and trachea lined with frothy mucus.

Lungs engorged with dark blood, except for scattered patches of a bright pink colour, and one or two small collapsed areas. Smell of HCN on section.

Grey matter of brain was stained green, not so deeply by any means as that of W. C.; the colour in this case a light olive-green.

On section into the lateral ventricles a marked smell of HCN, even stronger than in the case of W. C.

wall posteriorly in the region of the fundus; flabbiness of the myocardium; absence of putrefactive changes, of putrefactive odour, and of the ordinary post-mortem staining; and positive chemical and spectroscopic tests.

FIBROMA OF THE OVARY,

WITH AN ACCOUNT OF A CASE.

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FIBROMATA of the ovary are comparatively rare. Maclean¹ quotes Bland-Sutton as terming them "pathological curiosities." Clark and Gabe of Indianapolis, in a recent report of a case, note that very scant reference is made to the condition in most gynaecological text-books. They produce statistics to show the rarity of the condition. Thus, Sir Spencer Wells in 1200 ovariectomies found only three cases of ovarian fibroma, Kelly in 1200 laparotomies found four, whilst Hellman reports but six cases out of a series of 4500 pathological specimens covering a period of ten years at the Frauenklinik of the Charité at Berlin. Clark and Gabe's conclusions after a very thorough review of the literature on the subject are as follows: (1) Ovarian fibromata are sufficiently rare to warrant the publication of all carefully studied cases; (2) the diagnosis is dependent solely on microscopic examination; (3) in the presence of a hard, unilateral, movable tumour with ascites, where the more common causes of ascites can be ruled out, ovarian fibroma is highly probable; (4) the treatment is operative, the prognosis good.²

Incidence and Symptoms.

Ovarian fibromata are generally said to comprise 2 per cent. of all ovarian tumours. They occur at all periods of life, but are most common in single women about the menopause.³ The youngest case I have seen mention of—a girl of 12—is referred to by Eden and Lockyer.³ McCann reported the oldest case—a woman of 73.⁴ The clinical feature of a hard, one-sided, mobile pelvic tumour with ascites is very characteristic of the condition, but the presence of ascites is, however, very inconstant. It occurred in one only of seven cases collected by Fairbairn⁵—that is, in 14 per cent.—whereas Doran⁶ met with it in 5 out of 11 cases—45 per cent. Hellman states that only 5 per cent. of the cases show ascites.³ When present it may be extreme and require repeated tapplings. It was fairly extensive in the case now reported. Many explanations—mechanical, chemical, secretory—have been offered to account for its presence, but it is an extraordinary thing that it is not seen with other benign ovarian growths or with similar fibroid growths of the uterus. Hydrothorax may occur with the ascites. Other symptoms, such as pain, vomiting, dysuria, are the result of pressure, and naturally vary with the amount of ascites and the position and size of the growth. The latter may vary from that of a hen's egg to that of a man's head, though examples weighing as much as 56 lb. have been recorded. Apparently the microscopical examination of these tumours, which is laid down by Clark and Gabe as being the sole criterion of an accurate diagnosis, is not a simple matter. Williamson,⁷ for instance, points out that the microscopical examination is not always to be relied on, and that growths which on their microscopy were thought to be innocent have turned out to be malignant. As he says, "more accurate deductions as to the innocent or malignant nature . . . may often be drawn from the gross rather than the microscopical characters."

Classification.

Following Fairbairn's pioneer work, it is customary to divide these growths into three classes: one of these, the small pedunculated fibroma, accounts for a very small proportion of all the cases. The other two classes are defined by the amount of ovary

involved in the pathological change. When no trace of normal ovary tissue can be found, the growth is called a "diffused fibroma," and the great majority are said to be of this nature. It is in this class that some assert that ascites is the rule, but as they form the majority of cases, then we would expect to find ascites present in the majority, which is apparently not the case—Hellman stating that it only occurs in 5 per cent.² This figure may be low, but Doran's and Fairbairn's are also too low if the rule is to hold good. When only a part of the ovary is involved in the "fibromatous" process it is common to find a capsule to the growth, hence the name "encapsuled fibroma" given to this third class by some. These encapsuled growths are always innocent, and according to some are "seldom or never accompanied by ascites."⁷ As will be seen later, however, my case had a well-marked capsule and a considerable amount of ascites. Clark's case had a "well-marked fibrous capsule," and some ascites, though the latter was not recognised clinically.² These growths do not separate the layers of the broad ligament; they possess a pedicle which is rather short and broad as a rule.¹ Their consistence varies from soft—when degenerated—to bone-hard. Like uterine fibroids, they are liable to degenerative changes of which the commonest are cystic (due to myxomatous softening or to hæmorrhage), calcareous, and œdematous. The pedicle may become twisted³ and, of course, the growth may obstruct labour.

An Illustrative Case.

A case I treated recently is, I think, worth recording.

A married woman, aged 52, sent for me on Jan. 5th, 1920, on account of pain and swelling in the abdomen. The duration of her trouble she put at about two years. My notes at the time read: "Menses 19-51. Never any disturbance of this function. Eight children living—two are twins—says she has had over 20, twins twice and triplets once (?)"

Condition on Examination.—Mountainous swelling of abdomen due to free fluid and hard tumour, more on left. Mobility difficult to make out—so much fluid. P.V.—Cervix high up, jammed against back of pubes. Uterus seems separate from tumour (she says latter moves from side to side). No œdema lower limbs, vulva or lower abdominal wall. No nodules anywhere. Small ventral hernia—had it for years. Anæmia and cachexia, but has suffered for a time from pain, dyspepsia, and palpitation, with consequent loss of sleep. Pulse rapid and feeble. T. normal. Urine normal (never any dysuria). Diagnosis: On account of ascites, solid tumour of the ovary probably a fibroma; on account of certain amount of cachexia present—possibly sarcoma. I advised removal of the tumour or in default, tapping of the abdomen. After some hesitation the patient consented to be tapped.

Paracentesis.—On March 1st, at the Aberdare and District General Hospital, I performed paracentesis and withdrew 7½ gallons of clear greenish fluid. The tumour could now be felt as a hard, rounded, ballotable mass filling up a considerable part of the abdomen. As a general anæsthetic was employed, the patient being very apprehensive, the separability of the tumour from the uterus was made abundantly clear. No nodules were felt anywhere. The patient felt so relieved she would not consent to a radical operation and was discharged on the 19th.

Course of Case.—I saw little of her until I was sent for again on Jan. 25th, 1921. She had been suffering for some time from pain and intractable bilious vomiting due to pressure, which had made her life miserable; she was now prepared to have anything done. She was thin and wasted, but not to the extent I should have expected after such an interval had the growth been malignant. There had been a reaccumulation of fluid, but to nothing like the quantity present before tapping. The tumour had grown considerably; I thought it roughly one and a half times as large when she was in hospital. Vomiting was extreme—cold water being rejected as soon as taken. The pulse was rapid and feeble and temp. subnormal. The maximum abdominal girth was now 55 in. The similar figure previous to tapping I lost. There were no other new physical signs.

Laparotomy.—She was admitted to the same hospital again on Feb. 9th, 1921, and on the 12th I performed laparotomy with the help of my colleagues Dr. Isaac Banks, who assisted, and Dr. J. C. Ogilvie, who gave open ether. A small nick in the peritoneum allowed 22 pints of ascitic fluid, similar to the previous discharge, to flow slowly.

The incision was then enlarged well beyond the umbilicus and the tumour seen occupying the greater part of the abdomen. It was covered with a greenish-yellow, semiglistening, smooth surface very similar in appearance to the non-sensitive side of an undeveloped photographic film. Flakes of a similar nature to the covering of the tumour were floating loose in the ascitic fluid remaining, as if they had been rubbed off by friction. There were no adhesions, and the tumour, which was found to be of the left ovary, was removed whole by ligating the very short and broad pedicle by which it was attached in chains. The uterus and right ovary, which appeared normal, were allowed to remain. No nodular or papillomatous growths were seen in the abdomen, which was closed in the usual way. When examined in the bowl which received it the tumour resembled a huge pumpkin in shape, being rounded, and flattened from top to bottom. It was much larger than a man's head. The largest circumference was 41½ in. It weighed 19½ lb., and was soft and compressible. The covering of greenish-yellow tunica albuginea or capsule, after incision, was stripped off the whole of the tumour with the greatest of ease. The collapsed shell of the tumour, after stripping, showed at one pole a knob-like projection which looked as if it might have been the remains of the ovary, but unfortunately this portion was not examined microscopically. On section the tumour was honeycombed with small (½ in. diameter) cyst-like spaces which exuded blood freely and were evidently areas of degeneration.

Pathological Report.—A portion of the tumour was sent to the Clinical Research Association, and the following report was received: "The tissue is entirely necrotic and cellular elements are made out with great difficulty. It is a fibro-myoma (? fibroma, A. W. O.) of the ovary into which hæmorrhage has taken place thus forming the cysts, and subsequently the whole tumour has undergone necrosis. There is no evidence of recent infection. There is no sign of malignancy or of innocent epithelial proliferation." The patient was discharged from hospital much improved on April 30th, 1921.

I recently examined her—on April 20th, 1923, just 26 months after removal of the tumour—and found a rosy-cheeked, smiling and very obese woman (her obesity, she stated, was marked before her illness), and any doubts I had as to the real nature of the tumour were dispelled the moment I saw her. I could find no evidence of recurrence of the tumour or the ascites. The large size of the former and the extent of the latter are of interest. I could detect no hydrothorax. Unfortunately, by a mistake the tumour was destroyed a few days after removal. It would, I think, have been a useful addition to any gynecological museum.

References.

1. Maclean, E. J.: A Case of Fibroma of the Ovary, Jour. Obst. and Gynecol. Brit. Emp., November, 1903.
2. Clark, E. D., and Gabe, W. E.: Amer. Jour. Obst. and Gynecol., March, 1921.
3. Eden and Lockyer: Gynecology, p. 684. J. and A. Churchill London, 1916.
4. McCann, F. J.: Brit. Med. Jour., 1903, i., 127.
5. Fairbairn: Jour. Obst. and Gynecol. Brit. Emp., ii., 128.
6. Doran: Trans. Obst. Soc. Lond., 1896, xxxviii., 187.
7. Williamson and Barris: Diseases of the Ovary, New System of Gynecology, 1917, ii., 802.

TWO SPORADIC CASES OF INFECTION BY B. AERTRYCKE.

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THE connexion between *B. aertrycke* and food poisoning is now so well established that this organism is one of the first to come under suspicion when an outbreak of food poisoning occurs, but difficulty often arises in the recognition of the sporadic case, either from anomalous symptoms, or from insufficient pathological investigation when abdominal signs are preponderant.

The first case here recorded may be taken as representing the usual type, in which sudden onset, pyrexia, diarrhoea and vomiting, general abdominal

pain, and marked tenderness on palpation over the whole abdomen are the usual features. These are, however, by no means pathognomonic, and as a rule it is only by a process of exclusion, and with the help of the pathologist, that a correct diagnosis is reached. This case was sent to hospital as an "acute abdomen" and reached the medical wards with a provisional diagnosis of atypical typhoid fever, but clinical evidence and pathological investigation soon corrected this error. In the second case, no suspicion of the causative agent was roused, although some form of poisoning was suspected, and it was only after the examination of cultures from the cadaver that *B. aertrycke* was implicated. In neither instance was any other member of the household affected, nor was the source of the infection traced.

CASE 1.—Male, aged 23, admitted to King's College Hospital on August 1st, 1922, complaining of severe abdominal pain, with vomiting and diarrhoea which had started suddenly 24 hours previously. The abdominal pain was sharp and stabbing in character, but not definitely localised. It remained a prominent feature throughout the first week. Vomiting was frequent at the onset and did not finally cease until the seventh day; diarrhoea persisted for about the same time. The tongue was dry and the dorsum furred. The abdomen was moderately distended, and there was marked general abdominal tenderness without rigidity. Headache was severe for the first few days. The temperature was 102° F. on admission and gradually fell, becoming normal on the eighth day. The pulse-rate never rose above 100 and for most of the febrile period was between 80 and 90. The atropine test was performed on the third day, and the maximum increase in pulse-rate under the influence of 1/33 gr. of atropine was 14. A blood count on the third day showed a total leucocyte count of 14,400 per c.mm., with polymorphonuclears 67.6 per cent., lymphocytes 31.2 per cent., eosinophiles 1.2 per cent. The pyrexia and symptoms all subsided by the end of the first week, and convalescence was uninterrupted.

Bacteriological Investigation.—A blood culture was taken on the day after admission, Douglas and Colebrook's tryptic-broth culture-medium being used, but the cultures remained sterile. A Widal test on the patient's serum to *B. typhosus* and *B. paratyphosus* A and B was performed with negative results. On the third day a specimen of faeces was plated out, and from this *B. aertrycke* was isolated and identified. About 50 per cent. of the colonies developing on MacConkey's medium proved to be *B. aertrycke*. The organism gave all the cultural reactions of the Salmonella group; it was not agglutinated by a *B. paratyphosus* B or a *B. gaertner* serum even at one-tenth of the full titre of the serum; but gave standard agglutination with a *B. aertrycke* serum at double the titre of the serum. These agglutination reactions remained unchanged after the organism had been grown on artificial media for four months. Attempts were made to isolate the organism from the stools during the second and third weeks of the disease both by direct plating and by brilliant-green enrichment methods, but without success. Unsuccessful efforts were also made to recover the organism from the urine.

The agglutination reactions of the patient's serum gave the following results:—

Date in 1922.	Day of disease.	Standard agglutinin units.	
		<i>B. aertrycke</i> .	<i>B. paratyphosus</i> B.
Aug. 10	11	1760	6
" 21	22	1760	19
" 29	30	880	22
Sept. 12	44	270	6
Oct. 19	81	68	4
Nov. 30	123	44	<4

There was throughout no development of agglutinins to *B. paratyphosus* A or to *B. gaertner*. All agglutination tests were performed by Dreyer's method, with standard cultures and sera issued by the Oxford University Pathology Department.

CASE 2.—Female, aged 8, admitted to hospital at 9 P.M. with the following history: The day previous to admission the child seemed quite well, but at 3 A.M. had been roused with an attack of vomiting, soon followed by diarrhoea, which became severe and was accompanied by great pain in the abdomen and back, and marked restlessness. During the afternoon the child became unconscious, in which state she was admitted to hospital. On examination, the temperature was 101° F., respirations 60, and the pulse uncountable, but no abnormal physical signs could be detected. At 10.30 P.M. there was a generalised convulsion

with twitching of the arms and legs. A second occurred at 12.40 A.M., during which head retraction was marked, the opisthotonos being so severe that the head nearly touched the heels. The pupils were widely dilated and immobile during the fit, but became normal soon after the attack had ceased. A third fit occurred at 5.30 A.M., in which the opisthotonos was again marked; the respirations then became rapid and irregular, and the child died at 5.40 A.M., some 28 hours after onset of illness. Post mortem a marked injection of the mucosa was found in the stomach and duodenum; this subsided in the jejunum, became more intense in the ileum, and reached a maximum in the lower ileum and caecum, where the appearance was hæmorrhagic. The inflammation died away in the descending colon. The spleen was large and soft, and the mesenteric glands were increased in size. Apart from some congestion of the lungs and brain, no other lesions were found. Dr. J. G. Ledingham isolated *B. aertrycke* from the spleen and intestinal contents.

We are indebted to Sir Humphry Rolleston for permission to publish the notes of the second case.

A CASE OF ENCEPHALITIS LETHARGICA

RECOGNISED BY CHANGE IN BEHAVIOUR.

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FOLLOWING the publication in THE LANCET¹ of Prof. A. J. Hall's Lumleian lectures, notes of the following case were sent to him. He was kind enough to give his opinion that it was undoubtedly an example of encephalitis lethargica, and suggested its publication as illustrating particularly the serious medico-legal aspects of these cases.

Family History and Circumstances.—The child, a girl, aged 10 years and 10 months, is illegitimate, born when the mother was 17 years old. The mother is of average intelligence for her class; no abnormalities are known in her family nor in that of the child's father. The mother has married since the birth of this child; the step-father has always rather resented the latter's presence in the home, and has never treated her kindly. The home is a very poor one in every respect.

Previous Personal History.—Until early in 1920 the child, although described afterwards by her teacher as rather nervous and excitable, was never noted as in any way abnormal, and her general intelligence was certainly quite up to the average of her age and class.

Present Illness.—Early in 1920 the child was suddenly seized with what was then diagnosed as a violent attack of chorea. I did not see her until some months afterwards, when an accurate history was a little difficult to get from the relatives, but one fact had struck them very much, and can be relied upon—namely, that for the first 24 hours the child saw everything double. The illness was said to have come on through a fright—seeing a favourite uncle fall off a horse. The night after this fright she was very excited and hardly slept at all; the choreiform movements developed next day, and on (I think) the following day a doctor was called in who sent her to Addenbrooke's Hospital, Cambridge. She remained there, under treatment for chorea for about a week, but was discharged at the end of that time as "nobody could get any sleep in the ward, she made so much noise all night." She was treated as an out-patient for some months; the choreiform movements gradually subsided, but the child has remained in a very markedly abnormal mental state ever since.

Condition on Examination.—I saw her first in February, 1921, when she had returned to school. The parents had had no medical advice for some months. The child was then nearly nine years old; her general intelligence was good, and her school work nearly equal to the average for her age in spite of her long absence. She was, however, very restless, talkative, excitable, and emotional, the teacher said, "quite different from what she used to be." The parents complained that she gave them no rest at night, and that she was very spiteful towards the other children. Definite statements were made that as bedtime approached she became very excited, and although sent to bed sat up shouting and singing most of the night. She would fall asleep about breakfast-time, and often sleep until midday. The parents were utterly out of patience with the child, and had treated her with considerable severity on account of

¹ THE LANCET, April 14th, 1923, p. 731.

the way she behaved at night, but without any effect. About this time she was seen by the local doctor, who obtained the opinion of the superintendent of the local asylum; no definite diagnosis was arrived at, but removal from home was advised. The Education Committee arranged for her to be sent to the Lady Chichester Hospital at Hove, where she remained six months, and improved considerably, being apparently almost normal on her discharge in October, 1921.

Course of Case.—In February, 1922, the parents asked that I should see her again, as they "could do with her no longer." The nocturnal restlessness was again marked, although not so bad as before, and the child was described as quite unmanageable. The headmistress said she was exceedingly troublesome in school, and wished her to be excluded. She wept on the slightest provocation, was quite unable to concentrate on the simplest work, and was constantly drawing attention to herself by loud talk, laughing, singing, &c.

The nocturnal restlessness has gradually passed off, but the child remains most unstable and unmanageable. She

was placed for a time through the efforts of the local Voluntary Association for Mental Welfare under the care of a retired trained nurse, who had to send her home after a few weeks as the neighbours complained of her violent screaming attacks.

The child began to menstruate at the age of 10 years and 1 month, and has recently shown some tendency to exhibitionism; the mother is quite unable to cope with her, and unwilling to attempt it again. The child is now in the local workhouse infirmary, but the authorities are unwilling to keep her there as, although she is distinctly quieter, she is still a great source of disturbance and very quarrelsome. The possibility of certification under the Mental Deficiency Act has been considered, but very few institutions would consider the admission of a child who would be such a source of disturbance, and therefore so inimical to the progress of other children.

I am indebted to Dr. F. Robinson, county medical officer of health, for permission to publish these notes.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section was held on June 7th, Dr. T. W. EDEN, the President, being in the chair.

Dr. HERBERT SPENCER exhibited a specimen described as a sarcomatous ovarian dermoid, which consisted of a thin-walled cyst enclosing a few scanty hairs, and containing at its periphery a smaller cyst and a small mass of tissue which was found microscopically to be a round-celled sarcoma. The cyst was removed entire without difficulty from a woman of 41. The patient died 11 months later of widespread secondary growths throughout the abdomen. Sarcoma occurring in ovarian dermoids was rare. The first published case was that of Thornton in 1876; this case was interesting, as Thornton had used for the first time the "Listerian method" of operating.

Dr. Spencer also showed a specimen of a ruptured carcinoma of the ovary, a soft, solid tumour removed by unilateral ovariectomy. This patient was well, and showed no sign of recurrence six years later.

A third specimen shown by Dr. Spencer was a microscopic preparation exhibiting the effect on the Fallopian tube of torsion of an ovarian tumour. The tube from which the preparation was made was removed together with the ovary for recurrent attacks of torsion of an ovarian tumour. The epithelium of the tube, which normally was of the tall columnar variety, was in this preparation so flattened as to resemble endothelium, an effect ascribed by Dr. Spencer to the repeated attacks of torsion with resulting subepithelial hæmorrhage. This was an unusual effect which he had not observed in any other case.—Mr. L. PHILLIPS called attention to the fact that the sarcomatous process was not directly connected with the dermoid, and Dr. CUTHBERT LOCKYER suggested that the growth was a lymphosarcoma secondarily implanted on the ovary. This would account for the early appearance of generalised abdominal metastasis as well as the superficial position of the growth.—The PRESIDENT recalled that Dr. Spencer had published a case of successful amputation of the cervix for carcinoma as well as the present case of simple ovariectomy for a cancerous ovary. He felt that in spite of these successes more radical measures were indicated for malignant disease. As regards the epithelium in the third case, he pointed out that the flattening was not confined to regions in which the epithelium was stripped up by hæmorrhage, but occurred in places where it was normally attached; he therefore was inclined to regard it as an abnormality rather than

an effect of torsion.—Dr. SPENCER agreed that the sarcoma was not one originating in the teratomatous tissue of the dermoid, but considered it to be a primary large round-celled and not a secondary lymphosarcoma. The flattening of the epithelium in the third specimen he still considered as an effect of repeated torsion.

Dr. RUSSELL ANDREWS described a case of carcinoma of the cervix in a woman of 77 associated with prolapse of the uterus. The patient had for ten years worn a tight napkin to prevent prolapse of the cervix beyond the vulva. There had been bleeding for 12 months and the appearance of the prolapsed cervix was typical of carcinoma, but on account of the extreme rarity of carcinoma of the prolapsed cervix he had removed a portion for microscopic examination (which confirmed the diagnosis of carcinoma) before proceeding to perform vaginal hysterectomy. He thought it probable that the cancer resulted from chronic irritation of the cervix by the napkin.—Dr. LOCKYER could not understand why carcinoma should be as rare as it was, since it would be reasonable to expect that chronic irritation of the prolapsed cervix would lead to cancer. Only one case of the kind had occurred in his practice.—Dr. SPENCER had seen two cases of the kind, in one of which the growth was as large as a cocoanut.—The PRESIDENT was not satisfied that irritation by friction alone was a predisposing cause of cancer, and he suggested that possibly the supposed immunity of the prolapsed cervix from cancer might be merely a matter of inadequate or inaccurate statistics.

Mr. VICTOR BONNEY read a paper on

DIURNAL INCONTINENCE OF URINE IN WOMEN.

In its early stages this form of incontinence only occurred when women made some effort producing sudden violent abdominal strain, such as coughing or sneezing, but as it grew worse it was provoked by any movement which involved a sudden jerk, such as walking downstairs, running, jumping, or laughing, whilst in very bad cases the patient could scarcely make a movement of any sort in the standing position without wetting herself. Clinical examination showed that the escape of urine was associated with an abnormal descent of the bladder and urethra immediately behind the symphysis pubis. The speaker then proceeded to discuss the supporting mechanism of the female bladder and urethra, illustrating his remarks by a diagram, model, and slides. The base of the bladder rested on a layer of unstriated muscle fibres, the "pubo-cervical muscle sheet," which was attached in front to the pubic bone and behind to the cervix. This muscle sheet blended with the "peri-urethral wedge," a block of fibro-muscular tissue which surrounded the urethra. Diurnal incontinence was due to giving way of the pubo-cervical muscle sheet at its anterior end in contrast to cystocele, which was due to yielding of the middle segment of the muscle-sheet, and which did not produce diurnal incontinence, though it was popularly supposed to. In the sphincteric mechanism the sphincter vesicæ was probably

only one factor, and experiments which he had carried out seemed to show that the resisting power of the sphincter muscle varied immensely in different women. Mr. Bonney said that there still seemed to be a good deal of ignorance on the subject of diurnal incontinence, most medical men not being aware that it could be cured by operation. The common treatment was to insert a pessary, a perfectly useless proceeding, for no instrument could relieve the deformity which was the cause of the incontinence. A very large proportion of the sufferers could be cured by the operation which was called "tautening the vesical sphincter," though it really tautened the sphincteric mechanism rather than the sphincter. In a few cases where this operation had been insufficient he had attained success by ventro-fixing the bladder.

Mr. PHILLIPS inquired whether the pubo-cervical muscle sheet was not another name for the anterior fibres of the levator ani. He had performed the ordinary anterior colporrhaphy for diurnal incontinence with results which were generally very satisfactory.—Dr. SPENCER expressed surprise that Mr. Bonney had not referred to Kelly's operation, which he had often performed. After a failure with Kelly's operation he had performed the operation of twisting the urethra with success. He found it difficult to understand how the folding by transverse suturing of the pubo-cervical fascia described by Mr. Bonney could affect a muscle running antero-posteriorly.—The PRESIDENT described the operation performed by Watson of Edinburgh, which he thought resembled Mr. Bonney's, as following the lines of that described by Dr. Lockyer and himself, except that the dissection was carried further out on both sides. He failed to see how this could shorten or strengthen the pubo-cervical band. However, the section was indebted to Mr. Bonney for giving them a reasonable explanation of a very common and distressing complaint.

Mr. PHILLIPS read a paper on the

TREATMENT OF DYSMENORRHOEA.

with analysis of 100 cases. The cases, all of which were treated medically in the first instance, were divided as far as possible into clinical types. An analysis of the case papers brought out the following salient features; almost all the patients pursued a sedentary occupation, all were either single or sterile if married, and the majority had some menstrual irregularity, generally of the nature of excessive loss. Menorrhagia was usually associated with some degree of arrested development of the genital organs. No case had any organic disease. The type and position of the pain were most variable; it might be iliac, or hypogastric, or sacral; it might occur before, during, or after the flow, and sometimes during all three, when it was commonly associated with the passage of clots. Constipation was severe in half the cases. The majority of the patients were poorly developed, with weak abdominal muscles, faulty posture and breathing, and anaemia or visceroptosis, and many had other complaints such as headache, vomiting, frequency of micturition, and diarrhoea.

Pelvic examination was conducted by the rectum in the unmarried, and by the vagina in married women. The arrested development of the pelvic organs which occurred in half of the cases was one of three types: (i.) A small acutely anteverted uterus; (ii.) a small retroverted uterus, with a short anterior lip to the vaginal cervix; (iii.) a small retroverted uterus with a short anterior lip to the cervix. These were associated with poorly developed breasts and a male type of pelvis, and with menorrhagia or fortnightly losses much more frequently than with scanty menstruation.

Treatment.—(a) Fifty cases were treated with extracts of ductless glands, either alone or in combination with antispasmodics. The best results were obtained by the following combination: Mist. casc. co. daily, hormotone, 1 tablet t.d.s. for seven days before and during the period, and (if still unrelieved) phenazone, gr. v.; ext. caulophylli liq., ℥ xv.; caffeine, gr. v.; iq. chlorof. ad 5ss. every three hours, until relief was obtained (up to four days). Sometimes

tincture of belladonna or other antispasmodic was added to the mixture. Only four cases of this group, which failed to be relieved sufficiently to be able to carry on their work in comparative comfort, came eventually to operation. When the hormotone (or other ductless gland) tablets were omitted the painful periods often returned. (b) Forty cases were treated by antispasmodics alone; 34 were benefited, and the remaining six came to operation. (c) Ten cases were treated between the periods with bromides and salicylates, combined with laxatives and small nightly doses of luminal during the periods. All were relieved.

Clinical Types.

In treating these cases an attempt was made to interpret all the available information and evolve a plan of treatment based on the recognition of the following clinical types.

In Type 1 dysmenorrhœa was a disease of faulty hygiene, upbringing, and surroundings. This type was thin, anæmic, constipated, and poorly developed with visceroptosis and faulty posture and breathing. They followed sedentary lives with little exercise and fresh air. The feeble musculature of the uterus was easily exhausted and gave rise to cramp and pain when called upon to make expulsive efforts in the exhausted state. The treatment was directed to the correction of these faults. The correct mental attitude was cultivated by teaching the patient that menstruation was natural and that she must continue to bathe and take exercise as usual. No constricting clothing should be worn and stays must not be permitted to do the work of the abdominal muscles. Constipation was to be corrected by drinking plenty of water and eating fruit, combined with abdominal kneading night and morning. Purgatives should only be a temporary expedient. Exercise such as walking or tennis, and special exercises designed to strengthen the abdominal wall formed an important part of the treatment. Finally the importance of faulty upbringing and surroundings as a factor in the production of dysmenorrhœa and the need of improving these was emphasised. It was not so common to find a robust girl suffering from dysmenorrhœa.

In Type 2 the dysmenorrhœa was functional. These women complained not only of menstrual pain, but generally of headache, nausea, constipation as well. They were usually nervous and worried. Ten such cases were treated successfully by sedatives: (a) Bromides and salicylates between the periods; (b) luminal gr. i. gr. iss. nightly during and just before the period; and (c) general hygienic measures as already outlined, with attention to bowels and eyes.

In Type 3 the symptoms suggested some form of obstruction as the causal factor. This theory had been abandoned by many as it was considered that flexions and narrow os could not obstruct the flow of one-third of a drop of blood per minute, the rate of flow if 4 oz. of blood was lost in four days. However, the blood might be clotted, when obstruction would be possible in a normal internal os and cervical canal. Thin flat casts could be passed without pain, whereas solid rolled-up ones caused considerable pain. Also in some cases of dysmenorrhœa the pain was less or ceased when clots were passed. The pain resembled ureteral and biliary colic in its intensity and sudden onset, and subsided rapidly when the clot was passed, just as in biliary and ureteral colic the pain ceased when the stone was passed. Gynæcologists still continued to employ cervical splitting operations, such as anterior hysterotomy for the relief of pain. Finally, in three cases of hysterectomy for dysmenorrhœa performed during the period, the uterus was found to contain clots. Whether the intra-uterine clot was normal and was not dissolved because of endometrial defect, or whether clotting in utero was pathological, must be decided before the pain could be treated rationally. It was reasonable to suppose that a uterus with a poorly developed musculature might be unable to expel casts or clots even through a normal os.

Type 4. There was a type of patient in whom there existed "signs of arrested development of the genital organs." They complained of pain in one or other iliac region alone, or before the central pain. Menorrhagia was as common as scanty flow, because an undeveloped endometrium and musculature were linked up with a normal ovarian stimulus. The obvious treatment was to stimulate development of the uterus, and this was often successful. In addition to the general hygienic treatment organotherapy and electrical treatment were useful.

Organotherapy.—Ovarian extract, corpus luteum, thyroid, anterior lobe of pituitary, mixed gland, and hormotone (extracts of ovary, thyroid, pituitary, and testes) had been used. We know that hypothyroidism, hypo-pituitarism, and hypo-oöphorism may all be associated with pelvic hypoplasia—a condition observed in one-half of the cases in this series. Perhaps the "gatling gun" prescription like hormotone might hit the mark where the others failed. The possible part played by extract of testis was interesting. This extract alone, or combined with extract of prostate, was sometimes successful in dysmenorrhœa. In 1871 Bland-Sutton had pointed out a histological resemblance between the lining cells of the uterus and those of the large intestine, one of whose functions is chief absorption. Arthur Thomson had marshalled a formidable array of arguments to support the view¹ that the endometrium may be mainly absorptive in function.

Electricity in Dysmenorrhœa.—A few of the cases in this series were benefited by electrical treatment, but the treatment was personally administered. High-frequency currents heated up the deeply seated organs so that there resulted: (1) Dilatation of the vessels; (2) relaxation of spasm and inhibition of tone; (3) improvement in blood-supply and consequent improvement in nutrition and growth.

Results.

In ten cases where medical treatment had failed, two were cured by curettage and one by anterior hysterotomy. Hysterectomy was performed in two cases where the uterus contained clots and showed marked arterio-sclerosis, and the remainder (very severe cases) were sterilised by radium. One hundred cases treated surgically were followed up and compared with 100 cases treated medically. It was found that 25 per cent. were cured, 25 per cent. were relieved, and 50 per cent. were unaffected, while the best results were in cases treated by curettage. These results were inferior to those obtained in the series of 100 cases treated medically. The speaker believed that most gynaecologists felt that the surgical treatment of dysmenorrhœa without physical signs was on the whole disappointing.

Discussion.

The PRESIDENT congratulated Mr. Phillips upon the patient and successful work in the out-patient department upon which the paper was founded, as well as the skill with which the difficulties of nomenclature were overcome by the classification of patients by clinical types. He was particularly impressed by the small number of patients who came to operation (which in his experience cured 50 per cent., relieved 25 per cent. to some degree, and left the other 25 per cent. in no way improved) and by the greater success of medical treatment.

Mr. BONNEY pointed out that the figures of results of treatment of dysmenorrhœa were confused by the variety of causes. If dilatation was limited to cases of the "virginal type" of dysmenorrhœa described by Dr. Berkeley and himself the operative results would be much better. It was remarkable that very small uteri were so often associated with extreme hæmorrhage for which hysterectomy was required. Retroversion was often a cause of dysmenorrhœa in a virgin, and could be cured by reposition of the uterus. He intended to give hormotone a trial.

¹ Arthur Thomson: Problems Involved in the Congress of the Sexes, Brit. Med. Jour., 1922, i., 5.

Dr. ANDREWS inquired the age of the patients who were treated with radium, and the results of this form of treatment.

Dr. J. M. BRYDONE said that as a general practitioner he had been called upon to treat many cases of dysmenorrhœa, and found that while patients of 24 years or less could generally be cured, those over that age generally failed to respond to medical measures. There was a large element of suggestion about the treatment, and success was likely to follow care and perseverance. Many of the "masculine type" of women who suffered from dysmenorrhœa played too many games, and got better with rest. He described glandular treatment as achieving permanent palliation rather than cure, since relapse followed when it was discontinued.

Reply.

Mr. PHILLIPS said that the cases treated by radium were all over 35 years old, and there had been no period, and consequently no pain, in any since the treatment. It was important to keep on perseveringly with medical treatment until the right remedy was found.

YORKSHIRE TUBERCULOSIS SOCIETY.

At a meeting of this Society, held at Middleton Sanatorium, near Ilkley, on May 26th, Dr. J. RENNIE, the President, in the chair, Dr. THOMPSON CAMPBELL first demonstrated thoracoscopy on a patient having a long sinus left from tuberculous empyema, and then gave an address on cases of well-marked

Non-tuberculous Thoracic Disease Simulating Pulmonary Tubercle,

but all of which, to X ray examination, yielded findings negative of tuberculosis. There were two each of chronic bronchitis, of bronchiectasis, of pulmonary bullet wound, of pulmonary congestion plus mitral stenosis, of the sequelæ of "gassing"; and one each of silicosis, aortic aneurysm, and malignant disease. Showing in each instance a large scale schema of the physical signs, Dr. Campbell dwelt on the diagnostic points. The cases of bronchitis had a long history, ten years and four years respectively, with little constitutional impairment. The lecturer gave a reasoned attribution of the physical signs to thickened bronchioles and to alveolar catarrh. In bronchiectasis, which likewise yielded apical signs, the râles had a coarse bubbling rhonchial quality and the spit was copious and offensive; this rhonchial quality is to be contrasted with the more clicking sound common in tubercle. In cases of gassing, in the light of extended observation, diminished respiratory murmur, prolonged expiration, harsh inspiration, and muco-crepitations could very plausibly be considered as the results of simple catarrh and fibrosis. One of the heart cases showed signs in the left lung only. In silicosis the dyspnoea, anæmia, and diminished expansion, coexisting with few physical signs, helped to a correct diagnosis. In a patient with malignant disease the left upper lobe was dull, and blood-stained expectoration persisted in a way quite uncharacteristic of the hæmoptysis of phthisis. Death was due to metastatic deposits. The demonstration concluded with a display of skiagrams, including several of artificial pneumothorax cases, showing complete or incomplete collapse, in the latter case with a good view of the limiting adhesions. One skiagram of left-sided fibroid phthisis showed cardiac dislocation so marked that the intervertebral discs normally covered by the cardia were exposed and appeared in the skiagram. Time precluded more than a brief informal discussion, but the general conclusion emerged that with fuller opportunity of X ray examination of dispensary patients, such as is now available in Leeds, Sheffield, Lancashire county, and other places, these errors in diagnosis would lessen, and sanatorium beds be kept freer of non-tuberculous patients.

Reviews and Notices of Books.

THE MEDICAL ANNUAL.

A Year-Book of Treatment and Practitioner's Index. Bristol: John Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1923. Pp. 600. 20s.

AN adequate review of the Medical Annual becomes more and more difficult to make, for every year—and this is the forty-first—the subjects dealt with in the Dictionary of Practical Medicine, which forms the greater part of the volume, extend over an increasing range of medical knowledge. Below will be found the names of the contributors and the main headings of the subjects dealt with by each.

Prof. E. Wyllys Andrews, Abdominal Surgery; Dr. R. Barriau, Diseases of the Heart and Blood-vessels; Dr. J. Blomfield, Anæsthesia; Dr. J. D. Comrie, Renal and Urinary Diseases; Dr. C. F. Coombs, Diseases of the Heart and Blood-vessels; Prof. W. E. Fothergill, Gynæcology and Obstetrics; Dr. Herbert French, General Medicine; Prof. E. W. Hey Groves, Orthopædic Surgery; Dr. O. C. Gruner, Basal Metabolism; Dr. J. A. Hadfield, Psychological Medicine; Colonel L. W. Harrison, Venereal Diseases; Dr. C. T. Holland, Radio-Activity and Electro-therapeutics; Dr. J. Ramsay Hunt, Diseases of the Nervous System; Dr. Robert Hutchison, Gastro-intestinal Disorders; Prof. F. S. Langmead, Gastro-intestinal Disorders; the late Dr. Arthur Latham, Pulmonary Diseases; Dr. Camille Lian, Diseases of the Heart and Blood-vessels; Lieut.-Colonel A. E. J. Lister, Eye Diseases; Dr. E. G. Graham Little, Skin Diseases; Mr. J. P. Lockhart-Mummery, Rectal Surgery; Dr. Perisson and Dr. L. Pollet, Diseases of the Heart and Blood-vessels; Dr. J. Priestley, Public Health; Dr. C. S. Read, Mental Diseases; Sir Leonard Rogers, Tropical Diseases; Dr. J. D. Rolleston, Acute Infectious Diseases; Dr. C. E. Sundell, Rheumatism and Gout; Dr. L. T. Swain, Posture Treatment; Sir John Thomson-Walker, Genito-urinary Surgery; Dr. J. A. Torrens, Asthma, Hay Fever, Tuberculosis; Sir W. de Courcy Wheeler, General Surgery; Mr. A. J. M. Wright, Ear, Nose, and Throat Diseases.

The list is an imposing one. The number of distinguished names, however, must not be taken as a sign of "highbrow" therapeutics, suitable only for well-equipped institutions. The Editor of the Annual claims, with justice, that the contributors have supplied practical and suggestive articles, and in many cases they have imparted withal a personal and critical note to help the reader in his estimate of the value of the new views presented.

There are few medical men established in practice to whom the "Medical Annual" needs an introduction. The newly qualified, while wisely clinging to their old text-books, should realise that here is a means, if they have the will, to supplement these and to keep abreast of any technical alterations or new methods as they are introduced, accepted, and come into general use. The complaint is often made, especially by country practitioners, that they get out of touch with current teaching and need periods of study-leave which they are economically unable to make. In this volume they will find the next best thing.

PRACTICAL HYGIENE OF NATIVE COMPOUNDS IN TROPICAL AFRICA.

By A. PEARSON, M.B., late Chief Medical Officer of the Tanganyika Concessions and Union Minière du Haut-Katanga; and R. MOUCHET, M.D., Chief Medical Officer of the Union Minière du Haut-Katanga. London: Baillière, Tindall and Cox. 1923. Pp. 188. 22s. 6d.

THERE are few books on hygiene, more especially hygiene in the tropics, which can be described as easy or fascinating to read; it is noteworthy, therefore, that the reader of this volume soon becomes absorbed in the essentially wise and practical outlook that is maintained throughout its pages. The book is written mainly as a guide for the medical officer, who, at newly arrived in Central Africa, finds himself confronted with multifarious and complex problems

for which his previous training has provided no solution. To the technical aspect of their subject the authors have succeeded in imparting a human touch, for a study of these pages will assist the reader to grasp the attitude of the untutored negro to European-made sanitary laws. When this point of view is thoroughly appreciated the sanitarian will find himself in a much better position to deal tactfully with situations which would otherwise be quite unintelligible.

The management of compounds where native labour is employed, implying their protection from epidemic disease to which the native workers are so prone, is becoming year by year of great economic importance. On the proper handling of the subject in the wise manner outlined in these pages the commercial future of Central Africa hangs, and no one can doubt of the enormous potentialities of the vast Dark Continent or the responsibility of British enterprise in this direction. The subject-matter dealt with is extensive. The most important sections include general considerations relating to native life; here it is explained why the "married" African fares so much better and remains healthier than his unmarried brother, how the unmarried men tend to crowd together and thereby encourage the spread of zymotic disease. The general construction of compounds receives the serious consideration it deserves, and the information given will be found full and of first-class economic importance. The situation and arrangement of kitchens, the type of hut most suitable for different conditions, the very necessary latrine arrangements, water-supplies, diet and feeding, the maintenance of cleanliness, personal and general, are all discussed in detail. There is also a section dealing with the arrangement and conduct of native hospitals. Some new and interesting information also is contained in a brief section dealing with epidemic disease and pathology.

This book should be in the hands of every medical officer in Africa who has to deal with native labour, but its lessons are pertinent outside that continent; there is much in it which applies to native labour throughout the world.

ENCYCLOPEDIA OF VETERINARY MEDICINE, SURGERY, AND OBSTETRICS.

Edited by GEORGE H. WOOLDRIDGE, F.R.C.V.S., M.R.I.A., F.Z.S. In two volumes, with 506 illustrations. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 1654. £6 6s.

Prof. Wooldridge has presented to all who are interested a detailed summary of veterinary medical and surgical diseases and their up-to-date treatments. In conjunction with a number of collaborators he has covered much ground and a large amount of information of great value is collected within the covers of these two volumes. For the graduate in human medicine, especially if engaged in public health work, the Encyclopædia of Veterinary Medicine has many points of interest. The problems of disease, such as anthrax, tuberculosis, glanders, and rabies, offer many problems for joint solution by members of the two branches (human and veterinary) of medicine.

It is helpful to the human pathologist to have some knowledge of what his colleague in veterinary pathology is doing, and the Encyclopædia might also with advantage be studied by clinicians, for many of the accepted forms of treatment in human medicine are based on observations made originally upon animal patients. Although there may be idiosyncrasies to be considered in various species of the animal kingdom, there are also many analogies, and it is upon these that true comparative pathology has its foundation.

It is by reading books such as this that the student comes to realise how much remains to be done in the vast field of animal research. The editor and his colleagues have certainly done much to assist in its advance, and credit is due to the publishers for the general appearance of the book.

THE HISTORY OF MEDICINE.

The Life and Times of Ambroise Paré. With a New Translation of his Apology and an Account of his Journeys in Divers Places. By FRANCIS R. PACKARD, M.D. London: Humphrey Milford, Oxford University Press. 1922. Pp. 297. 28s.

The School of Salernum. The English version by Sir JOHN HARRINGTON. With a History of the School of Salernum, by FRANCIS R. PACKARD, M.D., and a note on the Pre-history of the Regimen Sanitatis, by FIELDING H. GARRISON, M.D. London: Humphrey Milford. 1922. Pp. 216. 14s.

THESE two volumes are issued by Mr. Milford, who publishes in this country the books issued by the American University Presses. They are printed in the United States and we reviewed the American editions of both on their appearance in 1921.¹ The two volumes now before us being in no way different from those originally issued in America, except, if we recollect aright, that there are one or two extra illustrations to the School of Salerno as issued by Mr. Milford, we need not say anything more about their contents other than to advise strongly those who care for the history of medicine to read them.

THE CHEMISTRY OF TUBERCULOSIS.

By H. GIDEON WELLS, M.D., Ph.D., LYDIA M. DE WITT, M.D., A.M., and ESMOND R. LONG, Ph.D. Baltimore, U.S.A.: Williams and Wilkins Company. 1923. Pp. 447. \$5.50.

IN the introduction, the authors point out that in their work at the Otto S.A. Sprague Memorial Institute on the chemo-therapy of tuberculosis, they have had to accumulate and critically review preceding and contemporaneous work on the chemical aspects of tuberculosis and related problems. The last compendious work of this kind to be issued was Ott's "Die Chemische Pathologie der Tuberkulose," published in 1903. Since then a vast amount of research has been published in journals all over the world. The present volume includes a summary of Ott's work, and as complete an account as possible of the work published since then. An immense amount of time and trouble must have been taken in its preparation; the references are admirably complete and the volume is bound to form an invaluable addition to any pathological library. Moreover, a complete account of the research work carried on in the Sprague Institute is appended. The value of these researches has long been recognised, and it is convenient to have them in one compact volume.

This book will be greatly appreciated by investigators and physicians interested in tuberculosis, and Prof. Wells and his colleagues are to be congratulated on the benefit they have conferred on workers in this branch of medicine.

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

Eighth edition, revised by PHILIP B. HAWK, M.S., Ph.D., Professor of Physiological Chemistry and Toxicology in the Jefferson Medical College of Philadelphia. London: J. and A. Churchill. 1923. Pp. 693. 24s.

HERE is a standard text-book containing all the chemical knowledge needed by a student of medicine. On reading the volume one is struck with the broad principles and scope of the work—a quality lacking in most books on the subject, of which, during the past few years, there have appeared a large number. There are some dozens of volumes at present on the market, all containing the particular views and even foibles of particular teachers. The familiar tests on potatoes and bread are too often copied from volume to volume with dismal uniformity, with the result that the student is tired of the subject. His interest cannot be raised on "egg-white" and

"unknowns"; he asks his teacher what bearing these experiments have on his subsequent clinical work. Anyone who has taken classes in physiological chemistry knows how difficult it is to answer these questions, and the average text-book can be sought from cover to cover without finding any reference to those chemical tests—for example systematic blood analysis, urinary diastase, and gastric analyses—in which the clinician puts his faith.

In this book every branch of chemical physiology is adequately described. One of the few criticisms to be offered is that perhaps too many methods are set out for any one determination, and no indication is given as to the one to be preferred. A full and workable account of Folin's methods of blood analysis is given and this description should go a long way towards popularising this time-saving system. The section on respiration is disappointing; a student could hardly follow the complexities of this important system from the description given. The illustrations are numerous and good.

The book should be found in every laboratory of physiological and pathological chemistry, and students will continue to appreciate it as a sound work of reference.

THE OUTLINE OF LITERATURE AND ART.

Edited by JOHN DRINKWATER and Sir WILLIAM ORPEN. London: George Newnes, Ltd. In 24 fortnightly parts. 1s. 2d. each.

PART 10 of the "Outline of Literature and Art" takes us from Shakespeare to Milton in literature, the review being practically confined to native talent, and in art deals with the Dutch paintings of the seventeenth century. These are two tremendous sections of literary and artistic activity for consideration in a very limited space, but the brief summaries seem to us to have been made with a due respect for proportion. The great medical author, Sir Thomas Browne, is treated, as he should be, more as an elaborate literary artist than as a scientist. None the less, Browne's philosophy owed as much to his continental studies of medicine and to his practical experiences at Norwich as to his classical training at Winchester and Oxford. The note on Robert Burton, whose classic, by reason of its title, so often finds its way into medical indices, shows how much proverbial humour and wisdom came from the pen of Lamb's "Fantastic Great Old Man." The note attributes to Robert Burton, among over a dozen such phrases, the following: "Rob Peter and pay Paul"; "Penny wise, pound foolish"; "All our geese are swans"; "Birds of a feather will gather together"; "Matches are made in Heaven"; and "To make necessity a virtue." Some of these brevities in wit probably had a previous origin though not perhaps in English.

It will be an excellent education for those who neither look closely at pictures nor read artistic criticism, to take the essay on Dutch painting in the seventeenth century into the National Gallery. For various reasons, despite the huge prices at sales, the paintings of these great Dutchmen are not receiving the enthusiastic attention which is their due, and which is being rendered to what are held to be more poetical or more beautiful canvasses. It will not be difficult to see both the poetry and the beauty in the national specimens, and a thing does not lose in merit because its merit is easy to detect.

AIDS TO OPHTHALMOLOGY.—A Polish translation of Mr. Bishop Harman's "Aids to Ophthalmology" has appeared. It is a translation of the sixth edition (London Baillière, Tindall and Cox., 1921) and is quite an attractive piece of book production. The illustrations and diagrams come out well and the shape of the small volume is handy. The translation has been made by Dr. W. H. Melanowski who acknowledges in the preface his gratification at being able to present to the Polish students this excellent specimen of the "Students' Aid Series."

¹ THE LANCET, 1921, i., 131, and ii., 1223.

THE LANCET.

LONDON: SATURDAY, JUNE 16, 1923.

THE COMING PANEL SETTLEMENT.

THE Panel Conference held last week at Westminster was momentous in its deliberations and in their probable outcome. The situation to-day in regard to medical practice under the Insurance Acts bears a superficial resemblance to that of 1911, for not only has the conduct of medical benefit been freely discussed, but wild and irresponsible suggestions have given rise to the idea that the whole of the panel system is again in the melting-pot. Nothing could be further from the truth. There is a crucial difference between the situation of 1911 and that of 1923. To discuss a large general proposition with any prospect of success requires not only clear vision and good judgment, but also some intimate experience of practical working. In 1911 the proposition of an insurance medical service bore a spurious appearance of orderliness based on analogy and particularly upon foreign example, with just a fringe of disorderliness of detail. In 1923 the circumstances are themselves orderly, based as they are on a body of experience, and the apparent disorderliness is spurious, to this extent, that it is due to defaults in detail which do not vitiate soundness of principle.

Let us trace the sequence of events which has led up to the Westminster panel conference. The Consultative Council of Approved Societies, with an inside knowledge of the difficulties of administration, made representations to the Ministry of Health, which were in their turn handed on to the Insurance Acts Committee of the British Medical Association, a body which constitutes the panel executive. This executive having considered these difficulties as well as all those other difficulties, real or imagined, brought forward in the public press, and having of set purpose ignored peculiar individual opinions, sent down a document embodying its considered policy to the panel committees. These in their turn, having discussed the memorandum, empowered their representatives to pronounce upon it at the panel conference. The report of this conference is set out in detail in another page of our present issue for the careful scrutiny of the medical profession as a whole, by those who are panel practitioners and those who are not, for we may frankly state that we have never attended a conference more open to the call of the common good or better devised to meet it. It was the deliberation of a body of medical men whose pleasure is in their work, and the dubious atmosphere was absent which surrounds deliberations where the intent is to find how far such-and-such a concession must be made to public opinion. With great restraint the conference refrained from discussing the amount of the capitation fee for 1924, dealing instead with the improvements necessary to ensure a first-class service in the belief that the panel doctor would then be backed up in his demand for any capitation fee which he could justify in return for such service. The conference, however, deliberately agreed to a limitation of the panel list to 2500 for a single-handed practitioner, although it was contended with good reason that the function of a supervising authority is to see that the doctor does his work properly, not to interfere with the number of

his patients. Insurance practice is not likely to benefit by discouraging its more ardent practitioners. It is undeniable that the men with large lists are often doing the best work; recent complaints have, we understand, come rather from those with short lists.

There is the complementary danger to which we have repeatedly called attention, that if the capitation fee offered is considered inadequate small panels may be given up altogether, the practitioners preferring or, indeed, being obliged to occupy their time with more remunerative work. At the present capitation rate the recompense to the rural doctor for his panel work actually does not give him a living wage, and this is a point on which more will be heard. But it is quite certain in any case that it is not by external pressure that the standard of panel work will be kept up. Panel committees may not yet be in a position to take the whole of their disciplinary work in hand, yet a beginning has been made, and the conference resolved that the regulations should be tightened up for the removal from the panel of any practitioner who, by consistent indifference to his duties, endangers the good name of the service. The fact that this new crime of "indifference" originates from panel practitioners themselves is a good omen for the future.

"UNWELL."

How unwell is the woman who is "unwell"? The discussions on dysmenorrhœa at the recent British Congress of Obstetrics and Gynæcology,¹ and at the Medical Officers of Schools Association,² reveal divergent views on what is supposed to be a very frequent disorder. We say "supposed" because whilst JACOBI is quoted as having found that pain was present in general in girls in 53 per cent. of cases, yet at a school and training centre Dr. SANDERSON CLOW found 70 per cent. of girls free from menstrual troubles, and this percentage was increased to 93 after a single educative talk with each girl. Some speakers, like Prof. BLAIR BELL, dwelt upon the pathological aspect of dysmenorrhœa and its surgical treatment, and others, notably Drs. T. WATTS EDEN, CHRISTOPHER MARTIN, J. S. FAIRBAIRN, and BETHEL SOLOMONS, laid stress upon the psychological aspects of the problem; but a crucial difference between modes of consideration of menstrual pain was unwittingly expressed by two speakers at the Congress, one of whom said, "Nobody expects the menstrual process to be free from pain entirely . . ." and the other, "If pain was not *expected* it frequently would not appear." This latter was the unanimous opinion of the speakers at the School Medical Officers' meeting, and they insisted upon the need for instruction in the elementary and essential truth that menstruation should be regarded as a natural and not a pathological function. According to Dr. CLOW, British text-books on obstetrics and gynæcology are largely responsible for the impression that suffering during the menstrual period is the rule. There is a common belief, too, among grown women that girls must expect to be in a state of semi-invalidism for two or three days in every month; but the girls themselves were easy to convert to what she calls the truer and saner view by which one of the greatest stumbling-blocks to women in their careers would be removed. "If the customary restraint on activity of girls during menstruation were withdrawn, one generation would see the end of most of the cases of dysmenorrhœa."

¹ THE LANCET, April 28th, p. 845.

² Ibid., June 9th, p. 1161.

This view of ætiology and treatment seems too simple to be true, but the changing opinions and practice in the ordinary treatment of the condition suggest that its varied though generally accepted pathology rests upon no sure foundation, and an instructive parallel is afforded by the growing belief that the pernicious vomiting of pregnancy depends upon mental processes. To her own generalisation Dr. CLOW makes one exception—"... severe spasmodic forms which had resisted treatment were not likely to yield to what she was now advocating, and to expect it would be absurd." Mr. LEONARD PHILLIPS, in a communication to a meeting of the Obstetrical and Gynæcological Section of the Royal Society of Medicine, reported on p. 1215 of our present issue, deals with the treatment of these severe cases and chronicles a fair proportion of successes. In this connexion, however, we may well recall Dr. WATTS EDEN's statement at the Congress that "He had placed under observation various so-called cases of severe menstrual pain, and practically all were found not to exist." We might correlate this with Dr. W. H. B. STODDART's dictum, rather startling by its inclusiveness, in a recent communication to THE LANCET³ that spasmodic dysmenorrhœa is an anxiety hysteria. The theory put forward by Dr. CLOW sums up opinions that are gradually meeting with fuller approval, and is of great importance to the happiness and efficiency of women. The search for the causes which led to the beliefs and traditions she attacks would open up a vast field. It is clear in her opening paragraph that a usual element in psychoneurotic manifestations is not lacking, for she mentions that the treatment of the physiological state by rest in bed with a novel was followed by increased apparent morbidity. But the gain from illness is not sufficient to account for all the suffering and disability arising from the menstrual function, for it must be remembered that psychoneurotic suffering is often very real to the sufferer. We speak of puberty as a time of stress, but part of the stress is often not an inevitable phenomenon but the result of an attitude towards sex which invests it with mystery and shame. Here is a fertile soil for the growth of suggestive influences when menstruation, the function of which is not fully comprehended even by gynæcologists, first appears in a young girl carefully uninstructed in the commonplaces of physiology. The therapeutic talks Dr. CLOW gave her young friends surely removed, in some cases, fears and apprehensions which should never have been present, and which would have easily led to further symptoms. Modern ideas of education, as well as of the naturalness of natural functions, may be expected to diminish psychoneurotic disorders.

The beliefs of the parents, who, as Dr. CLOW says, are harder to convince than the girls, show the unquestioning acceptance which is the mark of traditional rather than rational influences. Of course, the menstruating girl must obey time-honoured restrictions, or disaster will follow; but the nature of the disaster is indeterminate. In some cases and countries, however, restrictions and disaster are well defined; the presence of a menstruating woman will sour the milk or spoil the meat, or lead to a speedier decay of cut flowers, and sometimes the disasters are so dread that restriction amounts to imprisonment. It is possible that relics of such beliefs have survived in our civilisation, and that our fear of injury to health by exercise during the menstrual period is a secondary explanation grafted on a primitive taboo.

³ Ibid., May 5th, p. 925.

THE OCTOCENTENARY AT ST. BARTHOLOMEW'S.

It would be a churlish and ungrateful knave who could not in the last week have found stimulation and good entertainment among the octocentenary celebrations at Bart.'s. Those to whom ritual makes appeal were impressed by the service in the priory church of St. Bartholomew-the-Great, Smithfield, preliminary to the solemnity held in the quadrangle of the hospital grounds. The artistic eye, however critical, could not but be well pleased by the grouping and colour scheme of the episodes in the historical pageant in the quadrangle and of the tableaux in the grand hall. The keenest epicure could not fail to be enthusiastic about both viands and service of the lunch at the Guildhall, and those to whom irresponsible gaiety is a rare treat could safely rejoice at the ill fate of those respectable members of society, whether medical knights or police inspectors, who were held for ransom in the stocks at Bartholomew Fair. Perhaps the only episode which failed to give universal satisfaction was the opening ceremony of the Fair, when academic dress was not worn and eminent surgeons and physicians in newly ironed silk hats gazed jealously at their women folk with the family umbrella. We can select only a few of the events for special notice. The service at St. Bartholomew-the-Great was as full of colour as was the church of bright academic robes, white and blue nurses' uniforms, and red cassocked choirboys. The lesson from Ecclesiasticus, starting "Let us now praise famous men and our fathers that begat us," spoken in any educational institution must stimulate all who were once pupils there, though it may need a Kipling to express the emotion it begets. After the service, the pageant passed through the square. Trumpets and drums announced the beginning of a procession, and then the Augustinian Canons now established in this country passed slowly by, chanting, stopped to pay their tribute to the monk Rahere, founder of the hospital, and passed on. The herald then proclaimed the opening of the celebrations, and the pageant, picturing episodes from the history of the hospital since its foundation, began. Of these not the least impressive was that reminiscent of the Great War, for in this generation at least, the soldiers' blue hospital uniform and all it stands for has more emotional force than any other period in history, however suggestive is its picture. Of the tableaux, too, the war episode stood out, though in grandeur it was surpassed by the episode of the granting of the charter to the hospital by Henry VII. and in sheer beauty by those pictures in which girl students from the Royal Academy of Music, dressed as mediæval ladies, lent grace and colour to the group. At the various booths of the Fair money was freely spent, with little concern for value rendered. Indeed, the cheerful spirit manifest here as elsewhere throughout the week's celebrations could be taken as a sign of the confidence that, though weather and times might be bad, Bart.'s and Bart.'s men would continue to flourish now and 800 years hence. We think it probable, if the fine type of student now in school and hospital is maintained. Our last word on the Bart.'s week must be of these students—for it is with the future as well as the past that we are concerned. Their demeanour during this trying week must have given pride to those elder brothers of theirs who now have charge of their medical education and welfare. Control and discipline were relaxed, study was impossible, and excitement and festivity were the order of the day. Yet there was no discreditable episode, and the utmost courtesy and consideration were shown to guests. In the hands of the present members of staff and the exceptionally fine type of student who is attracted to this school the tradition of Bart.'s is safe.

Annotations.

"Ne quid nimis."

DEFATTED BACTERIAL VACCINES.

THE valuation of vaccine therapy varies widely with the experience, enthusiasm, and prejudice of different observers. Everyone agrees that it has proved rather less encouraging than was at one time expected, and it is only those with some solid faith in the principles of immunology that have remained steadfast in their belief that with further knowledge of technique this method of preventing and curing infectious disease would come into its own. Preventive inoculation against tuberculosis has been almost or quite a failure, curative inoculation has not been any great success, and it is in connexion with this infection that the new work of Prof. G. Dreyer¹ will be studied with most interest. On the whole, he points out, anti-bacterial, as distinct from antitoxic, immunity can be achieved experimentally better with Gram-negative than with Gram-positive organisms, which suggests that the lipoidal substances, on which he believes Gram-staining to depend, are responsible for the failure of Gram-positive and acid-fast bacilli to arouse an effective response in the body. He shows that if the tubercle bacillus be first treated with formalin and then extracted with acetone, a thin writh of the body of the bacillus remains which is not acid-fast, is more or less easily digested with trypsin, and will cause the production of various antibodies when inoculated into animals. It will be remembered that Deycke and Much have claimed results from so-called partial antigens prepared on different lines. Prof. Dreyer further shows that repeated small doses of his preparation bring about a definite improvement, both general and local, in animals infected with tuberculosis. The preliminary observations of Dr. A. C. Inman at Brompton and Drs. P. Fildes and G. T. Western at the London Hospital on the treatment of human cases are encouraging and show that Prof. Dreyer's antigen is at any rate not injurious. Similar defatted preparations have also been made with staphylococci, streptococci, and other organisms, and are under examination with promising results, the absence of any painful local reaction being especially noteworthy. Prof. Dreyer gave a lecture expounding this recent work to a critical audience at the Institute of Pathology and Research at St. Mary's Hospital on June 14th, whereafter doubtless many immunologists will attempt to repeat and expand his work. We hope that more ample experience will confirm the value of this new departure in vaccine therapy, which is at any rate one of the most interesting and hopeful ventures on the therapeutic side of immunology that we have been able to chronicle for some time.

THE DEVELOPMENT OF EXOTIC MEDICINE.

To students of exotic medicine there are two countries which have always possessed a peculiar fascination. From time immemorial India and China have been lands of mystery, and despite the penetrative keenness of Western science the mysterious veil in the case of China, at least, has been parted but a little way. Such glimpses as have appeared have served to whet curiosity. It appears that English and American medical men and methods have been received with least disfavour by the Chinese, and the standard work on the Diseases of China is the joint labour of Prof. W. H. Jefferys, M.D. Pennsylv., editor of the *China Medical Journal*, and Mr. J. L. Maxwell, M.D. Lond. Their large and comprehensive volume was, however, as the authors themselves pointed out, little more than a scraping of the surface, and the real solid work yet remains to be done. It is not, perhaps, so much in the realm of constitutional diseases as in that of infectious diseases that we may anticipate results. Scarcely ten

years ago China furnished us with one of our most fruitful opportunities for the study of pneumonic plague, and it is less than 20 years since Catto, contemporaneously with Katsurada, made the discovery of the Asiatic schistosome and added by no means the least of its laurels to the young school of tropical medicine with which he was associated. These, however, are but two instances which indicate that China is a storehouse of material of intrinsic medical interest. It is not to be expected that Western medicine will care to assimilate all that the East has to offer in the shape of formula, but in Madras Presidency at least, as our Indian correspondent writes, the indigenous system of medicine has been deemed worthy of an exhaustive report by the Government. Whatever the outcome of this report may be, Western medicine can at least make extremely serviceable use of the study of such natural phenomena as present themselves. The natural resources of China which arouse the curiosity of speculative industrial magnates are, no doubt, paralleled in the field of medical and especially parasitological research, where equally dazzling possibilities may present themselves. This is evidenced by an interesting little brochure which has just been published by the Presbyterian Mission Press in Shanghai. Emanating from the Peking Union Medical College it is the work of Dr. Carroll Faust, a distinguished graduate of one of America's best known helminthological schools. Dr. Faust, who is shortly visiting this country, has been wise in his policy of laying a solid general foundation for future specific work. The superlative work of individual British tropical pioneers has often met with strenuous official opposition, instead of the coöperation which leads to fruitful issues. The team principle in medical research, while possibly not of American origin, has been exploited most successfully by American workers, who realise that the most productive results, in medicine as in other fields, are likely to accrue from some system of coöperation and coöordinated work. Dr. Faust's little pamphlet bears the ambitious subtitle "A Syllabus for the Clinicians of China," and there is a salutary lesson in the fact that it should have been left to a non-medical zoologist to prepare such a useful and up-to-date summary.

MEDICAL HYDROLOGY.

THE short course of lectures and demonstrations, under the auspices of London University Extension Board, which has just been concluded, was the first of its kind in England, and was attended by more than 20 medical men. Lectures were delivered at the University of London by Drs. Buckley, Edgecombe, Fortescue Fox, Leonard Hill, and Waterhouse. A demonstration on the applications of heat and cold was given at the Medical Research Laboratories, and lecturettes on methods of treatment employed in military cases at the Ministry of Pensions Special Surgical Hospital at Shepherd's Bush, including a demonstration by Dr. Arthur Herbert on the preparation and uses of radioactive mud from New Zealand and on hyperthermal baths. A comprehensive programme was carried through at Harrogate, in which Drs. W. Bain, W. Brown, G. Holmes, Liddell, Miller, Pringle, Saberton, Solly and others took part, the various forms of treatment given at the Royal Baths being demonstrated and discussed. In his concluding lecture on the applications of hydrology to incipient and chronic disease at different periods of life, Dr. Fortescue Fox described the distinguishing character of British spas as compared with those of other countries. The climatic character of a spa, he said, affects the action of every kind of bath. At Strathpeffer the mean summer temperature is 12° F. less than in the valley of the Rhine, and equal to that of Leukerbad at 4500 feet. Harrogate and Buxton are 8° F. cooler than Nauheim or Aix-les-Bains, and possess the same temperature as Bormio, near the Stelvio Pass. The position of Britain on the north-westerly fringe of Europe and its incomparable coasts give to the constantly changing atmosphere of these islands a stimulating quality, analogous in

¹ Brit. Jour. of Experimental Pathology, vol. iv., 1923, p. 146.

its effects to those of the effervescing bath. British spas are therefore the most tonic in the world, and, if suitably utilised for preventive and curative treatment, are well adapted to the chronic ailments and infections of our own country, such as catarrh, tuberculosis, and rheumatism. Among modern methods requiring development at home, Dr. Fox specified the utilisation of the British eliminative waters, the employment of various forms of effervescing baths, and the external treatment of young subjects by salt waters. New knowledge had been acquired of the physical properties of various waters: the patient investigations of a few devoted workers, like Winternitz and his pupils, had borne much fruit; new light was constantly being shed by physiological discovery (to a large extent in England); and last, but not least, the systematic instruction that had been given for 20 years in continental countries, in the schools and at the spas, had resulted year by year in attracting to the study of waters and baths a group of scientific workers. These and other causes, Dr. Fox concluded, had transformed the position which this group of physical remedies occupied in our *materia medica*, and entitled them to an assured and essential place in the future.

REST OR EXERCISE IN THE TREATMENT OF PULMONARY TUBERCULOSIS?

ON June 4th there was a general meeting of that very live body, the Society of Superintendents of Tuberculosis Institutions, at 122, Harley-street, when a paper was read by Dr. E. E. Prest on the Treatment of Pulmonary Tuberculosis by Graduated Labour. The paper was a criticism of this treatment, and the Society had invited Dr. Marcus Paterson to reply. Other members joined in the discussion which followed, and it was remarkable in this that many, if not most, of the speakers had themselves suffered from pulmonary tuberculosis. It is not often that, at a medical meeting, the discussion of the treatment of a certain disease is conducted by its victims, and it would be desirable if this practice were to be more common than it is. It would, for example, be remarkably instructive if the subjects of venereal disease were to join in a debate on its suppression, although the organisers of such a debate might experience some difficulty in recruiting speakers. On the present occasion it was a significant fact that most of the speakers who pleaded for prolonged rest in the treatment of pulmonary tuberculosis had been perilously close to, or within the limits of, the third stage of the disease, while the advocates of exercise and graduated labour were for the most part able-bodied persons or ex-patients who had had but a fleeting, Turban-Gerhardt-first-stage taste of the disease. Indeed, the influence of pulmonary tuberculosis on the opinions of individual speakers was so characteristic that, as each person spoke, it was possible to form a comparatively accurate estimate of the extent to which he or she had suffered from tuberculosis. This grouping of the speakers naturally suggests that while exercise may be very beneficial to persons suffering only slightly from tuberculosis, and to others who are quite immune to it, rest is the most important remedy for those whose disease is advanced. One of the chief criticisms directed against graduated labour in sanatoriums was concerned with its educational effects. It was pointed out that the fitter the patient, the more graduated labour he was given, and that there was a serious risk of patients drawing the erroneous conclusion that, the harder the work they were set, the fitter they would become. At the present time, with sanatorium treatment lasting only three or four months, the most important rôle of the sanatorium is its educative work, and it would be deplorable if patients were to leave these institutions with the impression that rest is bad because they see the worst cases kept in bed and the earliest cases exercised. One of the speakers who dwelt on the educational functions of the sanatorium in this connexion, ventured the caustic suggestion that had

Dr. Paterson kept his first-stage patients in bed and set his third-stage patients to navvying, more of his old Frimley patients would be alive. For he would have taught his patients by practical demonstration that first-stage cases ultimately prosper on a regimen of prolonged rest, while there is nothing like excessive auto-inoculation for speeding the third-stage patient to his end. In summing up the chief points of this debate, both Dr. Paterson and Dr. S. Vere Pearson, the Society's President, remarked that the differences of the two camps were not perhaps as marked and irreconcilable as the opinions of the enthusiasts at either extreme might suggest. Both remedies have their legitimate sphere of usefulness, and, as Dr. Paterson insisted, whether a lung be rested by an artificial pneumothorax or exercised by navvies' work, careless technique and supervision may produce but a sorry caricature, stultifying intrinsically valuable methods. Dr. Pearson suggested that while rest was suitable during the stage of toxæmia, exercise might be beneficial when toxæmia had ceased. No objection was raised to this perfectly sound generalisation, but who can say when the toxæmia of tuberculosis has disappeared? It is surely one of the most difficult questions to answer, but in insisting on the superiority of the rectal method of taking the temperature over the oral and axillary methods, Dr. Prest pointed the way to the readiest method of distinguishing between active and inactive, toxæmic and non-toxæmic tuberculosis. Until such laboratory methods as the rate of precipitation of the erythrocytes, the Wildbolz auto-urine tests and others have proved themselves trustworthy, the physician would do well to use his clinical thermometer as the chief arbiter between complete rest and graduated exercise.

SUPPURATIVE THYROIDITIS OR LYMPHANGITIC ABSCESS?

IT has hitherto generally been taught that most suppurative conditions in the lower anterior triangle of the neck originate in the thyroid gland—i.e., begin as a thyroiditis. In the *Schweizerische medizinische Wochenschrift* for May 3rd, Prof. P. Clairmont, of the University Surgical Hospital in Zurich, throws out the suggestion that in many cases the thyroid has little or nothing to do with abscesses in this position, and that they are often due simply to inflammation in the lymphatic vessels in the triangular space bounded by the main blood-vessels of the neck as they run under the sterno-mastoid muscle, by the median portion of the omohyoid muscle, and by the middle line of the neck. He has recently observed three cases, the clinical picture of which was remarkably uniform and well-defined. In every case a unilateral swelling appeared at the anterior margin of the sterno-mastoid in the lower part of the neck. In two cases suppurative thyroiditis was diagnosed, and in the third it was suspected, before the operation. This showed the abscesses to be unconnected with the thyroid gland and to be situated between one lobe of the thyroid and the mid-fascia of the neck. Microscopic examination of the wall of one of these abscess cavities showed it to consist of granulation tissue, and within none of these abscess cavities were lymphatic glands found. This condition must be distinguished from diffuse phlegmon of the neck; the type of abscess to which Prof. Clairmont refers is, indeed, well defined anatomically. The prognosis is as good as for lymphangitic abscesses in the limbs, and after free escape of the pus has been provided by incision, the temperature usually falls rapidly to normal, and uneventful recovery follows. One of the cases recorded was that of a lad, aged 16, who experienced a stabbing pain in the right side of the throat while eating blackberries. A few days later severe pain and dysphagia set in, and he could swallow fluids only with difficulty. A swelling in the neck under the jaw extended downwards, the temperature rose to 39.6° C., and he could neither speak nor swallow. Later a diffuse swelling appeared in the right, lower, anterior triangle of the neck, being

bounded by the middle line, the right clavicle, and a point three finger-breadths above the right clavicle. Deep fluctuation was demonstrable, and incision of the swelling under a general anæsthetic yielded much offensive pus, which oozed out from under the sternomastoid muscle. The pus contained the *Streptococcus pyogenes*. The abscess cavity was as large as a hen's egg and was situated between the right lateral lobe of the thyroid and the mid-cervical fascia. The patient made a slow but uneventful recovery. In distinguishing between this condition and suppurative thyroiditis more help may, in Prof. Clairmont's opinion, be obtained from the history of the case than from the local examination before operation.

APPARATUS FOR HYDROCYANIC FUMIGATION.

THE fumigation of ships by hydrocyanic acid gas has been enthusiastically advocated and practised by the United States port health authorities, but the occurrence in America and in England of fatal accidents during the process has hitherto prevented the universal adoption of the method. Dr. G. R. Seager Thomas sets out in our present issue the post-mortem findings in two fatal cases which occurred last July at Southampton as an instalment of a more complete report. In the current number of the *Journal of Hygiene* Lieut.-Colonel W. Glen Liston, I.M.S., and Mr. S. N. Goré compare the results of fumigation with HCN gas in a series of experiments on a ship using alternately the "dumping fixture" and Liston's "cyanide fumigator." The characteristics of these two forms of apparatus may first be briefly described.

The dumping fixture has been employed extensively in the United States. It consists of a barrel, to the upper edge of which one or two boxes are fixed on hinges. The barrel serves to hold a strong solution of H_2SO_4 , while the boxes are filled with NaCN. The contents of the boxes can be tilted into the acid when desired by drawing upon cords adjusted for the purpose. The HCN gas is generated in this way. No special arrangement is made to distribute the gas, and the quantity evolved depends on the quantity and quality of the NaCN used. The concentration of the poison gas present in the space under treatment is not estimated at any stage in the process, and no means are provided for getting rid of the poison after it has accomplished its work other than the natural ventilation existing on the ship.

Liston's cyanide fumigator is a more elaborate apparatus. The gas is generated in a closed box which can be placed in the open air. On the lid of the box a petrol motor, a fan, and a chemical cabinet are fixed. The motor is capable of revolving the fan at a speed of 3600 revolutions per minute, and at this speed it can draw into the generating box, through an inlet pipe six inches in diameter, and deliver through an outlet pipe of the same diameter, 1200 cubic feet of air per minute at a pressure of six inches on a water gauge. The apparatus and chemicals required for generating, measuring, and testing the poison gas are contained in the chemical cabinet. The gas is evolved within the generating box by allowing a solution of sodium cyanide to mix with a solution of sulphuric acid on a mixing platform within the box. The quantity of poison gas evolved is regulated by the rate of flow of the two liquids upon the mixing platform; this rate is controlled by two screw clamps fixed on the rubber tubing which conducts the fluids from the vessels in the chemical cabinet into the generating box. When the motor is working the poison gas is diluted as rapidly as it is generated with air drawn by the fan from the compartment under treatment through the inlet pipe connecting the generating box with the compartment. The poison gas, diluted in this way, is at once blown back by the fan along an outlet pipe connecting the fan and generating box with the compartment. The outlet pipe extends into the compartment for a considerable distance; it is furnished with a number of branches of gradually decreasing diameter, so that the diluted gas is carried to the remotest parts of the compartment and delivered there at from eight to ten different points. These points may be selected on the various decks of the ship. The air and poison gas within the compartment are thus continuously circulated through the generating box, where more poison gas can be added at will up to the concentration required to destroy rats, bugs, fleas, or other vermin. The concentration of poison gas in the air circulating through the machine can be estimated at any time by stopping the generation of the gas for a few minutes, while a measured volume of the air mixed with poison gas is

taken either from the outlet pipe from the fan, or, by making special arrangements, from any part of the compartment under treatment. The apparatus and chemicals for this purpose are provided in the chemical cabinet fixed to the machine.

Liston's fumigator thus differs from the dumping fixture in that (1) the poison gas, on generation, is rapidly diluted with air, so that high concentrations are avoided; (2) the evolution of the gas is constantly under control during the whole period of fumigation; (3) the concentration of gas within the room can be estimated at any time; (4) the distribution of gas in the compartment is rendered more rapid and even by mechanical means; (5) the gas can be displaced by fresh air when its work is accomplished, a system of artificial ventilation assisting the natural ventilation of the ship. The machines are portable and can be carried by two men. Each is equipped to deal with 60,000 cubic feet of space at one time, so that a number of machines or units are required for the fumigation of a ship; the units should be used simultaneously, so that the whole ship is fumigated at one time. The period required for completing the process is from three to four hours. A port health officer should be provided with at least ten units or machines.

The experiments detailed by the authors in their paper demonstrate the defects and dangers of the dumping fixture and the advantages, noted above, which are to be derived from the use of the fumigator. For instance, while 7 lb. of sodium cyanide scarcely sufficed to kill all rats when the dumping fixture was employed, 6 lb. were sufficient to kill all rats with the fumigator. The use of the fumigator probably ensures greater safety, first because the poison gas is generated in the open air, secondly because its rapid dilution prevents the occurrence of pockets of poison gas in high concentrations. With the fumigator economy in the use of cyanide and acid effects a saving which goes far to cover the greater primary outlay and running expenses, as against the smaller cost and maintenance charges of the dumping fixture. On the grounds of safety and efficiency, therefore, it seems possible that Liston's cyanide fumigator may replace the dumping fixture in the fumigation of ships by hydrocyanic acid gas. The publication of the complete report on the Southampton cases will be awaited with interest.

ARSENOBENZOL AND THE SPIROCHÆTE.

AN excellent survey of the position of arsenobenzol in the treatment of syphilis is contributed by Mr. Claude H. Mills to the April and May numbers of the *British Journal of Dermatology and Syphilis*. After considering the various methods of administering the drug and the points in its favour, the author discusses the limitations of the arsenobenzols in syphilis. He points out that the failure of arsenobenzol to cure cases of syphilis, in which some time has been allowed to elapse before treatment has commenced, is due to the fact that the *Spirochaeta pallida* has a power of remaining latent in avascular retreats where arsenobenzol is unable to reach it. No matter what drugs may supersede those in present use, they will be faced with the same problem of penetration. Another important point upon which the author dwells is the variation with which individual cases presenting a clinical similarity with regard to duration of infection respond to a uniform course of arsenobenzol treatment. It is probable that the rate of excretion exerts an important influence, for, as Mr. Mills points out, the patient who eliminates a given dosage slowly does better clinically than a patient who excretes the same rapidly, although at the same time he is more likely to develop such collateral effects as dermatitis and jaundice. The slower he excretes the greater the chance of a large proportion of the injected dose being converted into spirochæticidal derivative. Another point on which the paper lays emphasis is the dangerous nature of the relapses met with in cases that have been insufficiently treated with arsenobenzol. These relapses

are dangerous, the writer points out, not only from the patient's point of view, but sociologically, on account of the highly infectious nature of the surface lesions prone to develop at a date considerably later than in cases treated purely with mercury—or, in fact, in which no treatment at all had been received. Mr. Mills has seen such lesions as moist papules, mucous patches, and condylomata develop as relapses in patients as late as six years from commencement of arsenobenzol treatment in primary and secondary cases. The possibility of the occurrence of such delayed and highly infectious clinical relapses emphasises the importance of keeping patients under regular and prolonged observation wherever arsenobenzols are employed in the treatment of syphilis.

H.R.H. PRINCESS CHRISTIAN.

By the death of H.R.H. Princess Christian on June 2nd many good causes have lost a devoted friend. The nursing profession in particular had reason to be grateful for constant and influential assistance; Princess Christian was the founder of the Army Nursing Reserve, which was recognised by the War Office in 1897, and during both the South African War and the war of 1914–18 she was prominently associated with Red Cross work. As President of the Royal Free Hospital, and president or patron of numerous other hospitals and charitable institutions, Princess Christian displayed publicly the interest in national health which found private expression in the establishment and maintenance of a nursing home at Windsor (founded in memory of her son, Prince Christian Victor, who died at Pretoria in 1900), of a creche in the same town, and of a holiday home for crippled boys at Englefield Green. Princess Christian was for many years President of the College of Ambulance, and yet another of her interests was the work of the Home for British Lepers. She was a truly charitable lady, and the medical profession sympathise with the Royal Family in her loss.

CANCER IN PLANTS.

THE exhaustive researches of Dr. Erwin F. Smith, of Washington, on experimental crown-gall in plants¹ have led him repeatedly to emphasise the resemblances between the abnormal growths produced by *Bacterium tumefaciens* and malignant tumours in man. In his view, which is supported by Jensen, the bacteria start an irregular proliferation of the plant cells, which, without further stimulation, proceed to permeate the normal tissues and give rise to secondary tumours at a distance, partly from themselves and partly by inducing similar abnormal growth in the cells with which they are in contact. The facts have lately been re-examined by Messrs. Robinson and Walken in Manchester,² and the new observations which they have made show that Smith's interpretation is hardly tenable. In the original gall the bacteria are mostly present on the rough external surface, and the later development of the gall is for the most part due to their presence there. But the authors have succeeded in definitely demonstrating that the causative organisms also spread inwards in zoogloal strands along intercellular spaces and protoxylem vessels, and in this way form centres of abnormal growth and gall-production along their track. The primary and secondary galls and tumour strands arise by proliferation of pre-existing cells of the host in the presence of bacteria, and they find no evidence of invasive growth of tumour tissue or of the formation of tumours at a distance from the organisms. These observations appear entirely to invalidate the analogy which Smith has drawn between crown-gall and malignant tumours, one essential characteristic of which is that, once the abnormal growth has been started, it continues indefinitely without any further causative stimulus.

¹ See, e.g., Journal of Cancer Research, 1922, vii., 1.

² Annals of Botany, 1923, cxlvi., 299.

INTRASPINAL INJECTIONS OF ANTITOXIN IN MALIGNANT DIPHTHERIA.

THE intraspinal injection of antitoxin in diphtheria has hitherto been employed by only a few clinicians, and chiefly as a prophylactic or curative method of the paralytic sequelæ. Dr. E. Benhamou and his internes MM. Camatte and Flogny,¹ of Algiers, now recommend its use during the acute stage of malignant diphtheria, in which the child remains in a state of profound toxæmia, in spite of large doses of serum administered intramuscularly or subcutaneously associated with adrenalin, strychnine, or digitalis. In all the writers' cases in which the serum was given intraspinally, provided the injection was not given too late, a "veritable resurrection" was witnessed. It is most important not to wait too long before resorting to this method. If after the first 24 hours large doses of serum intramuscularly have not improved the condition, or if from the first the case seems desperate, 20–30 c.cm. of serum should be injected intraspinally after removal of about an equal quantity of cerebro-spinal fluid. Intramuscular injections of 20–40 c.cm. and subcutaneous injections of 40–60 c.cm. should also be given, and the intensive treatment should be continued subcutaneously during the following days. No bad effects such as anaphylaxis were ever observed after intraspinal injection. The method is not suitable for mild or moderate cases, which are readily cured by subcutaneous or intramuscular injection, but should be reserved for malignant cases.

Dr. Georges Dreyer, F.R.S., professor of pathology in the University of Oxford, has been appointed a member of the Medical Research Council in the vacancy caused by the resignation of Major-General Sir William Leishman, F.R.S., consequent on his appointment as Director-General, Army Medical Services.

As the result of recent conferences of the Presidents of various sections of the Royal Society of Medicine, a number of subjects have been decided upon for debate during the session 1923–24. The whole Society will be asked to discuss three important subjects: (1) The possible substitutes for cocaine; (2) the grading of the population from the point of view of bodily fitness; (3) chronic abdominal pain in nervous women. A further announcement will be made on the Diary cards.

THE Scottish Board of Health have appointed a Departmental Committee to inquire into the incidence of puerperal morbidity and mortality, with special reference to the causes contributing thereto, and to suggest any remedial measures. The composition of the Committee is as follows: Lord Salvesen, chairman; Mrs. Mary Barbour, a member of Glasgow Town Council; Dr. R. C. Buist, hon. secretary, Dundee branch of British Medical Association; Miss M. E. Cairns, vice-president, Scottish Midwives Association; Dr. T. F. Dewar, Scottish Board of Health; Miss A. M. Fraser, superintendent, Motherwell and District Nursing Association; Dr. Matthew Hay, a director of Aberdeen Maternity Hospital; Prof. B. P. Watson, professor of midwifery and gynaecology, University of Edinburgh; with Mr. C. L. Farmer, Scottish Board of Health, as secretary.

¹ Paris Médical, April 28th, 1923.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—The annual general meeting will be held at 11, Chandos-street, London, W., on June 21st, preceded by a Demonstration from 7.45 to 8.15, when (a) Dr. L. F. Hirst will show microscope specimens; (b) Col. Clayton Lane will show an ordinary centrifuge with buckets adapted for direct centrifugal flotation for use in the diagnosis of ankylostome infestation. The chair will be taken at 8.15 by Sir James Cantlie (retiring President). The first awards will be made of the Chalmers Memorial Medal and of the Manson Medal. Dr. L. Fabian Hirst, of Ceylon, will read a paper on the Spread of Plague in the East Indies (illustrated by lantern slides).

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXIV.

TREATMENT OF HÆMORRHOIDS.

Symptomatology.—The patient always appears with a ready-made diagnosis, but the medical man must be on his guard. In a patient of about 50, who has been only lately affected, malignant disease of the rectum is more probable than hæmorrhoids, which postulate a long-standing condition. The cardinal symptoms are: (1) hæmorrhage, (2) protrusion, (3) pain or pruritus. By far the most common, and often the unique symptom is hæmorrhage. It may be trifling in amount—a streak of blood noticed only in the stools—or the quantity may be large and the blood then escapes from the anus at any time, not only on defecation. Protrusion is a later phenomenon. It occurs where the vicious circle—piles, constipation, straining, larger piles—has progressed for some little time. Eventually, the piles are large enough to produce the reflex of a foreign body, and the pile-bearing area is extruded through the anal orifice on defecation. An acute complication of this process is strangulation of the pile area by the external sphincter. The consequence of repeated protrusion is congestion and trauma of the mass, leading to fibrous tissue formation or partial thrombosis and progressive enlargement and hardening of the hæmorrhoids. Each further protrusion facilitates a subsequent accident and finally a definite prolapse is produced.

If pain be the chief complaint the condition is probably not one of hæmorrhoids. In piles pain is a late symptom associated with strangulation or ulceration of a protruding mass. In so-called external piles pain is, of course, the only and urgent symptom. Other symptoms include a sensation of weight and dragging in the anal canal or sacral region. Pruritus indicates septic irritation or ulceration. Neuroses of various kinds may be noted in susceptible individuals.

General Examination.—The pulse is examined for high tension, the heart for valvular lesions, and the abdomen for enlargement of liver or spleen, tumours of large intestine, or fecal accumulations in the colon. A nodule of malignant disease may be found in the liver or the anterior abdominal wall before iliac glands are obviously enlarged.

Local inspection will exclude syphilis, gonorrhœa, fistula, and fissure. A tag of skin representing an obsolete extruded pile is strong evidence of present internal hæmorrhoids. A speculum—the short fenestrated Lockhart-Mummery pattern is the best—should be passed. The pile masses or ridges will fall into view through the fenestra, and their exact position should be noted. A condition occasionally noted in the absence of definite piles is the red, soft, velvety appearance of the anal mucous membrane, which bleeds readily. This affection is usually consequent on dysentery, and is not amenable to operative treatment. The finger may be used finally, especially if no piles are visible, to exclude new growth of the rectum or of the ilio-pelvic colon.

The diagnosis of piles being established, appropriate treatment becomes the main concern.

Treatment of External Piles.

The expression "external piles" signifies a hæmatoma from rupture of a vein of the anal margin. The patient is probably right in attributing his malady to a sudden strain or effort. Clinically the condition is one of a rounded bluish prominence at the anal orifice. It is always exquisitely tender; soft at first, harder as thrombosis progresses. Gas or a local anæsthetic should be given at once, and the apical third of the swelling snipped off with sharp scissors. Instant relief of pain follows. Under a dressing of 1 in 40–60 carbolic lotion the wound soon heals.

Palliative Treatment of Internal Piles.

If the hæmorrhoids have once appeared through the anal orifice local palliative treatment is rarely sufficient. In slighter cases this is worthy of trial, and in any event the patient generally demands non-radical measures in the first instance. Treatment consists in rest, if possible a week in bed, diet, laxatives, and local and internal medication. Diet should be restricted to milk only for the first two days, supplemented afterwards with bread, butter, milk-puddings, and later jelly, fish, and tripe. Eggs are inadvisable. The best laxative is a good teaspoonful of sulphur sublim., given in milk in the evening. If insufficient, pulv. glycyrr. co. may be added. Some patients do better on pulv. rhei co., gr. xx. To anæmic and nervous patients it is advisable to give iron and strychnine, and where there is cardiac insufficiency tr. digital., ℥v. A suppository once or twice a day is helpful; if hæmorrhage is free, ac. tannic., gr. v.; ext. hippocastani sicc., gr. ½; basis, ad circ. gr. xv.; if irritation and discomfort is the main symptom, ext. bellad., gr. ½; ext. hamamel., ℥x.; basis, ad circ. gr. xv., should be given.

In *ambulant cases* the diet cannot be restricted to the same extent. An ointment of the same proportions as the suppositories may be dispensed in a collapsible tube to which a rectal pipe is attached. Ext. hippocastani liq. 5 per cent., gtt. v.–x., b.i.d., a.c., may be prescribed. The ambulant patient should be instructed to wipe clean after defecation the protrusion of mucous membrane, not with dry paper, but with soft paper previously dipped into cold or tepid water. This detail makes a great difference to his comfort at least.

Radical Treatment of Internal Piles.

Contra-indications for radical treatment are: (a) permanent venous stasis due to liver and heart affections; (b) post-dysenteric capillary piles.

Indications are: failure of palliative treatment, considerable hæmorrhage, protrusion, and strangulation. The method to be selected depends upon the surgeon's personal bias. The procedures in actual use are: clamp and cautery, ligation, modified excision, and injection. To my mind, ligation or modified excision are the methods of choice.

The *clamp and cautery* should be restricted to the case of strangulated piles, where it is employed as an urgent measure by some of the best authorities. Others wait until sepsis and sloughing have subsided, and proceed as in non-urgent cases.

Injection.—I consider this procedure to be contra-indicated in large, multiple, readily-bleeding or prolapsing piles. Its use should be restricted to such cases as present a single pile mass which causes no great trouble except for its occasional escape from the anal orifice. It may also be selected when a general anæsthetic is contra-indicated. This method appeals to the patient because he need not remain quiet more than 24 hours, and because no general anæsthetic is required. The method consists in the injection of 20 per cent. ac. carbol. in glycerine aq. dest. aa, by means of a dental or a similar syringe. Four to six minims of this solution are injected through the base of the pile into its centre. One pile only should be treated at a sitting. Probably two injections will suffice to thrombose any one pile. If too much is injected, sloughing and sepsis may ensue with considerable pain, to say nothing of the risk of septic thrombosis. When the thrombotic process is complete the pile remains represented by a fibrotic ridge or nodule which causes no inconvenience.

Ligation gives very satisfactory results, especially in pedunculated or isolated pile masses. It consists in the reflection of the mucous membrane of the base of the pile, transfixion of the exposed fibro-vascular pedicle by a needle carrying a catgut ligature, and the ligation of the transfixed tissues. When the ligature is securely tied the pile is removed with scissors, leaving a stump to prevent slipping of the ligature.

Modified Excision.—A combination of excision, ligature, and suture is the method usually employed

in my practice. The patient lives on milk diet mainly for a week before operation, taking evening doses of sulphur subl. or of pulv. glycyrrh. co. If possible, the last two days are spent in bed on a diet of milk alone, an ounce of ol. ricin. being administered at night, and a large simple enema next morning and evening. A "binding" dose of opium and catechu is unnecessary if the diet has been adhered to. The patient is anaesthetised and placed in the lithotomy position and a wide area painted with iodine. The external sphincter is dilated slightly to allow of a thorough irrigation of the anal mucous membrane with warm normal saline.

It is sufficient to remove three, seldom four, of the largest piles, for the smaller piles disappear after operation. The proximal end of the pile ridge is marked by a pair of Spencer Wells forceps applied vertically to the surface; the pile ridge is then clamped firmly by applying a long Kocher pattern forceps to its base, horizontally to the surface, and in a direction radial to the anus, like the long hand of a clock. The pile ridge is then separated, along with the Spencer Wells forceps, flush with the upper border of the Kocher forceps, which remains grasping the base of the pile. The sections of thickened arterioles and venous spaces surrounded by fibrous tissue appear in the grasp of the forceps. A continuous suture of No. 1 catgut is applied by transfixing at intervals the base or pedicle by passing the needle between forceps and anal wall, and bringing the loops over superficial to the forceps. When this suture is drawn tight and tied it assures complete hæmostasis and approximation of the mucous membrane edges. The other piles are dealt with *seriatim*. The anal canal is carefully inspected for bleeding—the smallest degree of oozing must not be neglected—smeared with bipp, and the operation area is allowed to recede. Sterile gauze and T-bandage are applied and a $\frac{1}{4}$ -gr. morphine suppository is given. No tube is inserted.

After-Treatment.

Dressings.—Usually the replacement of the gauze pad applied on the table suffices. Protrusion may recur. A hot boric (or moss-bag) fomentation, backed by a rubber hot-water bottle, will relieve congestion, pain, and the prolapse, which should be smeared with sterile vaseline or soft bipp.

Diet.—Milk only for the first two days, thereafter milk diet; light diet after the first purgation.

Purgation is regarded as an ordeal by the patient, who is generally agreeably surprised after the event. Ol. ricin. 1 oz. is given on the third or fourth evening, depending on the abdominal flatulence, and pil. col. hyosc. gr. ii. on alternate evenings afterwards, unless the patient prefers senna or some other mild laxative.

Retention seldom occurs when the morphine suppository has been given; a hot fomentation to the perineum with a hot-water bottle on the hypogastrium is usually effective, or turning on the hands and knees.

Rest.—The patient remains in bed for ten days, in his room for 14 days, and should spare another week for convalescence if possible: total, 21 days.

Apart from the efficacy of this method of operation, it has subsidiary advantages. The patient may return to work in three weeks. The first evacuation after operation is less painful than after other procedures. As regards permanency of cure, the linear scars tend to draw up the slack mucous membrane and anchor it to the muscular wall, so that prolapse does not recur. After six months three or four linear radial scars can be seen; the smaller incipient piles have disappeared, owing probably to the slight tightening of the mucous membrane between the excised portions.

There are, of course, innumerable well-known methods of operation. I have confined these remarks to a method modified but slightly from that which during the war I found the most useful and speedy way of curing men sent to the base with piles.

R. M. ROWE, M.D. Edin., F.R.C.S. Eng.,
Surgeon to Out-patients, French Hospital, London.

Special Articles.

THE PANEL CONFERENCE: REVISION OF THE TERMS OF SERVICE.

A SPECIAL conference of representatives of local medical and panel committees was held at the Central Hall, Westminster, on Thursday, June 7th, Dr. H. G. Dain, of Birmingham, presiding.

TERMS OF SERVICE FOR 1924.

Dr. H. B. Brackenbury, chairman of the Insurance Acts Committee (hereinafter called I.A.C.), proposed acceptance of the memorandum drawn up by the I.A.C. upon the revision of terms of service of insurance practitioners for 1924 onwards. This document, which contained the proposals made by the Ministry of Health, after consultation with the Approved Societies Consultative Council (hereinafter called A.S.C.C.), for the revision of the medical benefit regulations and the considered opinion of the I.A.C. thereon, had been previously circulated among panel committees for their approval and criticism. The memorandum, said Dr. Brackenbury, represented the deliberate policy of the I.A.C. for acceptance, or otherwise, as a whole by the conference. In drawing it up there had been two bodies of opinion to take into account. The first held that come what might the capitation fee for medical service under the Acts must be cut down at any cost. The second was more concerned to obtain from the doctors such improvements as would ensure a first-class service, and was then willing to back them up in the demand for any capitation fee which they could justify in return for such service. The I.A.C. had deliberately chosen to deal with the second body of opinion. Peculiar individual opinions had been ignored, ideas implying radical alteration in the basis of insurance practice had been ruled out, and there then remained to consider a number of suggestions, formidable enough, but not such as the doctors could not go a long way to meet. All the objections put forward by any substantial body of opinion had been duly weighed in the memorandum presented. There were, Dr. Brackenbury felt, three points essential to secure sympathy from the public: (1) Free choice of doctor, (2) limitation of panel lists, (3) re-statement in some general form of the range of service offered; and he advised the conference to do what they had to do generously and fully. Encouraged by a review of the financial position* prepared for the I.A.C. by an expert adviser, which included an investigation into the insurance fund as a whole, the I.A.C. was convinced that that fund contained a sufficient means to meet the reasonable demands of the medical profession without any Treasury grant at all. It was really one fund, although its division into a number of subsidiary funds and minor accounts had resulted in some confusion. He had himself no doubt that the large reserve accumulated was a result of the remarkable fall in incidence of incapacity, owing to a quite

* The conclusions reached in this review are as follow:—

1. The amount of the remuneration of the insurance practitioner, having been determined on its merits, must take its place as a charge against the National Health Insurance Fund with all other normal and necessary charges against that fund.
2. There is every indication that the National Health Insurance Fund is in a position of great strength to bear all such charges. The Government actuary, writing in March, 1922, on the results of the valuation of approved societies as at the end of 1918, said that "no student of social conditions can fail to be impressed by the financial strength of the system of National Health Insurance." The experience of years subsequent to 1918 must have confirmed that view.
3. The valuation of approved societies up to 1918 revealed profits of £17,000,000 over and above the amount of Contingencies Funds of £6,500,000, a total surplus of £23,500,000. The continued low sickness experience since that date gives a strong indication of further large profits on the valuation soon to be made.
4. The societies have made these profits over periods when large special grants from the Exchequer were supplementing the normal insurance funds, on the assumption—which experience

(Continued at foot of next column.)

justifiable miscalculation by the actuaries in 1911. This fall had been remarkable even in the larger approved societies, amongst which the incidence had never been more than 70 per cent. of what had been calculated, while in some of the smaller societies it had not exceeded 52 per cent. This was, Dr. Brackenbury added, in the main due to the treatment by panel practitioners of insured persons, and the immense reserve so built up ought to be considered part of the fund on which doctors had some claim. As a matter of fact, the moiety of this fund which was by statute invested by the Government for the societies had long borne only 3 per cent. and, since the war, 4 per cent. interest; but by a draft regulation issued during the last few days it was now to bear interest at $4\frac{1}{2}$ per cent. There was, in fact, no need to ask for a special Treasury grant, for if the medical service came forward with an offer to meet all legitimate criticisms and to offer a blameless service, this extra $\frac{1}{2}$ per cent. provided the necessary margin. The I.A.C. therefore proposed that discussion should in the first instance be directed to the alterations of the terms of service other than financial, any consideration of the amount of the capitation fee being postponed until the October conference.

After Dr. Brackenbury had thus spoken, the conference promptly agreed on the policy of accepting such alteration of the present terms of service as seemed good to the conference, "including a re-statement of the range of service to be included within the contract, with a view to securing for insured persons the fullest and best general practitioner service possible" with the proviso that the Ministry of Health should produce their complete scheme for 1924, including finance, not less than one month prior to the autumn conference to be held in September or October, in order that panel committees might place the actual situation before their constituents for consideration in time for report to that conference.

Waiting-room Accommodation and Lock-up Surgeries.

The I.A.C. expressed the opinion that an insurance committee would be right in seeing that proper and sufficient surgery and waiting-room accommodation was provided without necessarily waiting for a specific complaint with regard to a particular doctor from one of his insured patients, the co-operation of the panel committee being invited. In the matter of lock-up surgeries in urban areas, arrangements should be such as would enable a caller to get into personal touch with the doctor or his deputy with sufficient promptitude to meet the necessities of a case of emergency. This would entail either:—

(a) A resident caretaker and telephonic communication between the surgery and doctor's residence; or

(b) where the doctor lived within a distance limited in accordance with the decision of the Insurance Committee of the area, notice at the lock-up surgery visible day and night indicating where the doctor or his deputy would be found; or

(c) where the doctor lived at a distance so that only his deputy was available as a rule between certain hours, the giving of a written notice of the deputising arrangements to each of the doctor's patients.

(Continued from preceding column.)

of the working of the Act has not yet supported—that those funds were inadequate to meet the normal and necessary liabilities.

5. The favourable results, therefore, exceed any reasonable expectations which the societies could have entertained. The question of using these profits to any further extent to pay any part of the cost of medical benefit does not arise. But they are such as to enable the societies to face the future with confidence.

6. The other funds directly providing for benefits of insured persons—the Deposit Contributors' Fund and the Navy and Army Fund—are both in a very substantial position.

7. Behind the funds carried into the accounts of approved societies, there are substantial balances in the National Health Insurance Fund which make the position of that fund additionally secure. In the stamps sold account and the Central fund there were balances at the end of 1920 amounting to £5,500,000; and it seems not unlikely that the demands to be met out of these accounts will not materially have exceeded the amount of additions to the above balance, leaving that amount more or less intact at the end of 1923. The true financial position of the Reserve Suspense Fund will probably be difficult to estimate or some time to come, but it must, by its nature, be a potential source of great strength to the National Health Insurance Fund.

The conference accepted these standards without demur.

Limitation of Panel Lists.

The question of the maximum number of insured persons for whom a practitioner may accept liability is closely bound up with that of partners and assistants. Limitation had already been accepted in principle, and the I.A.C. recommended that no objection should be taken to reduction from 3000 to 2500 for a single-handed practitioner, and to 4000 for a practitioner with one permanent assistant. Representatives from industrial areas protested that, if such reduction was insisted on, not enough doctors could be induced to live in crowded districts, and that reduction would imply a premium on living out. It was alleged without contradiction that the large list men were often doing the best work, that all the complaints came from men with short lists, and that compulsory reduction would result in chronic patients being cut out of the doctor's list. One large insurance committee was quoted as having been converted from preference for a 1500–2000 list to approval of a 3000 list. A London representative urged with force that the insurance committee was there to see that the doctor did his work properly, not to interfere with the number of his patients. Exploitation of assistants as a commercial proposition was deprecated. Nevertheless the proposed reduction was accepted by a large majority, with the proviso that allowance up to the present maximum should be made for exceptional circumstances in existing practices.

Free Choice of Doctor.

Free choice between doctor and patient within the insurance service, up to the utmost limit possible, has always been contended for by the medical profession. The I.A.C.'s present proposal is to widen the present opportunity and to allow free choice by a panel patient at any time, coupled with the corresponding right for a practitioner to repudiate an insured person on his list. Such free choice would not affect the method of calculating remuneration. An amendment that no insured person should exercise his right of choice more than once in three months was lost. The conference agreed that free choice could be the more freely granted if the fear of canvassing could be removed, and an assurance was given from the chair that the Minister would take steps against any approved society official who canvassed. It was pointed out that in Manchester no friction had arisen from free choice, and that thus to put the insured person exactly in the position of the private patient did as a matter of experience greatly reduce complaints. The conference was emphatic in refusing to extend the privilege of change of doctor to patients taking their medical benefit from approved institutions, in view of the risk of patients being swept wholesale into such institutions which possessed powers with which the regulations could not deal.

Excessive Prescribing.

The A.S.C.C. having expressed some apprehension that the present system of checking excessive prescribing may discourage doctors from prescribing what is reasonably necessary, a revision of the system was proposed in an appendix to the I.A.C.'s memorandum. The gist of these proposals is that the function of investigation, whether or not a case arises for the panel committee to consider, should rest with the Ministry; that the question of whether there has been extravagance and how much should then be decided by the panel committee or, on appeal, by referees; that finally the question of the appropriate penalty should be considered by the insurance committee and decided by the Minister. Several areas in which the present system is now working well pleaded for its continuance. One large area, however, which had never yet been obliged to surcharge, saw the time coming when it might be forced to do so. Some mirth was excited by the naive

declaration of one delegate: "The present plan has worked perfectly; we have never surcharged anybody." The view of the I.A.C. on the matter was accepted.

RANGE OF SERVICE.

The A.S.C.C. had asked the Ministry of Health to confer with medical representatives as to possible amendments of the terms of service, with a view to facilitating the task of insurance committees in deciding whether particular services did or did not fall within the range of a practitioner's obligations. The I.A.C. agreed that it would be advantageous to attempt to re-state in some general way what the range of service should be understood to include, and had set out this re-statement in the form of two schedules, positive and negative.

Schedule "A."—Services included in the contract of an insurance practitioner:—

1. Such services as can in general be described as those which in the best interest of the patient can be performed by a general practitioner of competence and skill. These do not include services of a specialist character—viz., those set out in Schedule "B."

2. The provision for the administration of an anæsthetic in cases requiring it: (a) whenever the service is within the contract and is given within the provisions of the contract; (b) where the anæsthetic is administered by the insurance practitioner to a patient on his list for a service not included in the contract (except in the case of dental operations).

3. Assistance at an operation not within the contract where such assistance is given by the insurance practitioner of the patient.

4. Such other services, even though of a character such as those set out in Schedule "B," as, after an investigation of the individual case, are declared by the Local Medical Committee and the Insurance Committee of an area, or on appeal the Ministry of Health, to be within the contract.

Schedule "B."—Services not within the contract of an insurance practitioner include:—

1. Estimation of errors of refraction. Operations on the eyeball, lacrimal gland, or nasal duct.

2. Operations on the internal and middle ear. Operations within the nasal cavity and on the accessory sinuses. Tonsillectomy. Operations on the larynx and trachea (other than laryngotomy and tracheotomy).

3. Dental operations.

4. Major operations, such as: (a) Operations on the skull, brain, or spinal cord (other than lumbar puncture). (b) Removal of thyroid or lymphatic glands. (c) Removal of tumours of the breast. (d) Operations involving an opening of the thoracic or abdominal cavities (other than paracentesis thoracis or abdominis). (e) Operations on the urinary organs (other than suprapubic puncture and the passage of catheter or sound) and operations involving openings of the urethra. (f) Removal of internal piles. (g) Open operative treatment of fractures or dislocations. (h) Operations on the bones or joints or amputations other than those of the fingers and toes. (i) Plastic and orthopædic operations. (j) Operations on the arteries and veins (other than those required for the immediate arrest of hæmorrhage). (k) Amputation of the cervix uteri or removal of the testis. (l) Operations for excision of skin affections of a malignant nature or deemed to be malignant.

5. Treatment by X rays, radium, or electricity.

6. Such other services as, after investigation of the individual case, are declared by the Local Medical Committee and the Insurance Committee of an area or, on appeal, by the Ministry of Health, to be outside the contract.

Various amendments expressed the fear of extending the definition of "ordinary medical attendance and treatment," to include services not ordinarily given by the average medical practitioner. Dr. Brackenbury pointed out that the words in inverted commas did not occur in the Act and that the schedules were based on the simple principle that everything of a general practitioner kind should be within the service and everything of a specialist kind without the service. Obviously it would not be fair that every practitioner should be required to do for his insured person everything he was prepared to do for a private patient. The practitioner had a right to any specialty of his own. In certain rural areas an average might even include major operations. Definition of general practitioner service by exclusion was unavoidable, for definition by inclusion would run to volumes.

Anæsthetics, Lumbar Puncture, Vaccination.

An amendment:

That there is no justification for compelling an insurance practitioner to administer, without fee, an anæsthetic to a patient on his list for a service not included in the contract. led to considerable discussion and was lost after it had been pointed out that what was in question was the voluntary administration of an anæsthetic to his own patient and not at the dictation of the surgeon when, as was frequently the case, the latter chose the anæsthetist.

An amendment to delete the words "other than lumbar puncture" on Schedule "B" was defeated, on the general ground that any well-educated general practitioner should have this in his therapeutic equipment. A further amendment to add bacteriological and advanced biochemical examinations to the list of exclusions was withdrawn on the assurance that diagnosis came under another regulation. An amendment to have the obligation to perform vaccinations and other prophylactic injections removed from the duties of the panel practitioner was lost, the dilemma being brilliantly stated that prophylactic injections were not given by practitioners who did not believe in them, and must of necessity lighten the other work of those who did.

Requirements to be Satisfied by a Practitioner who Claims to Accept a Fee.

While no practitioner may accept from a patient whom he is under contract to treat any fee or remuneration for any treatment which is alleged to be outside the contract, the I.A.C. proposed that a fee might be asked for when two conditions are satisfied:—

(a) When the doctor prior to giving such treatment, or in case of urgency within two days after, furnishes the insurance committee on a form to be supplied by them for the purpose, with such particulars as they may require.

(b) When the doctor has satisfied the insurance committee, after consultation with the local medical committee, that he possesses one or other of the following qualifications: (1) Tenure of hospital or other appointments affording special opportunities for acquiring experience of the service rendered; (2) special academic or post-graduate study or recognised proficiency and experience in the particular capacity required for the service rendered; in each case combined with evidence of actual practice of the type of service rendered.

Of these conditions, the second—that of satisfying the local medical committee that the doctor is a specialist—is new. The practitioner who contends in effect "This is outside the service, and I propose doing it myself" must satisfy his colleagues of his capacity to do so. The new condition was accepted with general approval.

CERTIFICATES AND RECORDS.

The I.A.C. proposed to ask that the whole certification systems should be made more simple and elastic, especially with reference to (a) a reduction in the number of certificates to two or three instead of eight or nine; (b) a release from the obligation to give certificates to insured persons receiving treatment from some other person or institution. A motion to simplify certification in the direction of an omnibus form (one form for nine), accompanied by a practical illustration of how to do it, was gratefully accepted.

Disapproval was expressed of the use by the Stationery Office of the back of certification forms for advertising purposes, special objection being taken to the puffing of food preparations. It was decided to ask that proofs of any advertisement contemplated should be submitted to the medical service for approval, or as an alternative, that both sides of the form should be filled up with certification matter to the exclusion of advertisements. Any available space might, it was felt, be fairly used for the instruction of panel patients in their duties and privileges.

It was agreed to press for the removal, as in Scotland, of the compulsion to enter every item of attendance on the record card. A motion that clinical records only should be obligatory and that if and when other records were required they should

be obtained through panel committees from selected practitioners on payment, was lost by a bare majority.

COMPLAINTS AGAINST DOCTORS.

The I.A.C. proposed the giving to panel committees of more power and responsibility with regard to the efficiency of the service, amongst other things the power to take action with regard to practitioners who are not carrying out their terms of service. The A.S.C.C. had pointed out the occasional difficulty in securing effective consideration of the cases of panel doctors believed to be habitually so behaving that their continuance on the list was prejudicial to efficiency. The conference agreed to meet this difficulty. An amendment that it is inadvisable for panel committees to initiate complaints against doctors who are not carrying out their terms of service was rejected almost unanimously, and a motion was carried to the effect that the regulations should be tightened up for the removal from the panel of any practitioner who by consistent indifference to his duties endangered the good name of the panel service. The "indifference" referred to in this motion constitutes a new crime in the panel service. A representative of London agreed that while the panel committee was not yet in a position to take the whole of its disciplinary work in hand, yet a beginning should be made. In nine cases out of ten a word to the offender from the committee sufficed, in the small remainder of cases initiation of a complaint would be useful.

It was decided to press for the limitation of the period during which insurance committees can notify doctors against whom complaints are lodged. The conference felt strongly in regard to the working of the medical service subcommittees that the circulation should be prevented of statements irrelevant and frequently prejudicial to the cases before them. No practitioner or insured person should be required to answer any charge which had not been definitely formulated apart from any correspondence from which it appeared to rise. A proposal to get power for the chairman of this subcommittee to put witnesses on oath was regarded as impracticable.

SOME PROBLEMS OF ADMINISTRATION.

Rural Practice.—The memorandum of the I.A.C. considered that no settlement with the Government would be satisfactory which did not allow of special provision being made for certain rural practices with small panels. It was pointed out that the average mileage per visit might be two and a half or more, while the visiting rate was from two to six times as heavy in rural districts. In Devon an average panel was stated to be 500-600, and it was physically impossible to do more. It was, in fact, increasingly difficult in view of the rural depopulation for the practitioner to carry on and educate his children without some private means. A motion asking for further special compensation over and above the mileage allowance was accepted. Dr. J. P. Williams-Freeman set out the various proposals which had been made for assisting rural practitioners—additional grants, as in the Highlands; a minimum capitation list; a graduated capitation fee; increase of Poor-law salary; ordinary mileage loaded for distance; special grants on the basis of mileage units—difficulties had been experienced in putting any one of those into force and he supported the summoning of a meeting of representatives of rural areas to confer and take action. This was referred to the I.A.C. for its consideration.

Regional Medical Officers.—It was agreed that the I.A.C. should arrange with the Ministry of Health that no part-time medical officer should referee on the cases of any neighbouring practitioner.

Extension of Service to Diagnosis.—The conference expressed its unanimous opinion that at the earliest time, permitted by financial stress, there should be an extension of the medical service to matters beyond the general practitioner's range, that a beginning might be made with the provision of increased diagnostic facilities (X ray and laboratory), and that the relation-

ship of such extensions to present additional benefits should be carefully considered.

Efforts to Secure Unity.—A report was received on the question of coöperation between the Insurance Acts Committee and the Medical Practitioners' Union. The conference resolved to request its executive, within its present constitution and powers, to coöperate with any other medical organisations, so far as such coöperation would be advisable in the best interests of its work. It was decided to press for an increase in the direct representation of local medical and panel committees on the I.A.C. to the total number of 23.

National Insurance Defence Trust.—From the report of the trustees of this trust it appears that 80 per cent. of the total number of panel committees have actually subscribed to the fund, and another 9 per cent. have promised support. The fund stood at present at about £46,000.

Pensions Scheme.—With the assistance of several members of the London Panel Committee, a subcommittee had drawn up a report in which it was stated that no pensions scheme properly so-called was practicable, and that the only scheme fair to all participants would be one in the nature of deferred pay. Further, that no scheme of any kind would be likely to secure Government sanction unless supported by a great majority of insurance practitioners. It was pointed out in discussion that one-third of London practitioners were already over the age of 65 years and that most panel doctors preferred to invest the whole of their savings in their own way rather than have a deduction at the source for investment in trust funds bearing interest at only 4 per cent. A motion to inaugurate such a scheme of deferred pay was rejected almost with unanimity.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

IRISH MEDICAL ASSOCIATION.

The annual general meeting of the Irish Medical Association was held on June 6th. Senator W. O'Sullivan, of Killarney, was elected President, and Prof. F. C. Purser, of Dublin, Vice-President, for the ensuing year. Prof. R. J. Kinkead, of Galway, and Dr. Leonard Kidd, of Enniskillen, past presidents, were elected honorary members. The report of Council showed that the membership had declined in 1922, but the balance of the credit had increased from £255 5s. 1d. to £528 14s. 8d.

The President delivered an address dealing with the present position of public health and the curative system in Ireland. He said that the Irish Government had already given solid assurances of will and capacity to grapple with urgent social and economic conditions, but there was an almost total absence on the part of governments to request, or accept when given, the advice of the Irish medical profession on purely medical affairs. In the Free State there had been Commissions dealing with most questions of national importance *except* the health of the people. Many of the changes recently made in Poor-law administration had a great deal to recommend them, but so far as they included the medical services they had been decidedly for the worse. At the time these changes were being first contemplated their more serious defects were pointed out on behalf of the profession, but the warnings were unheeded, with the result that, at the present moment, the efficiency of the medical services, which were intended to meet the requirements of the less well-to-do classes, were at a lower standard than they had been for the past 25 years. In the modern sense there was no live public health service. The prevention of the spread of infectious disease was altogether dependent on the medical attendant who, in a large percentage of the cases, might be the dispensary doctor. For the latter office he received generally about £20 a year, which seemed to suggest that he was not expected to

take public health questions very seriously. The bad reputation of Irish sanitation was unfortunate from the commercial point of view for a food-exporting country. Commenting on the absence or inadequacy of medical inspection of school-children, of schemes of treatment for expectant and nursing mothers, and for the prevention and treatment of tuberculosis, he estimated that more than 50 per cent. of the entire Irish population received their medical treatment in the first instance from the dispensary doctors, numbering 800, who received altogether about £170,000. The mileage covered in doing this work, if charged at garage rates, would amount to something close on £500,000. From this it would be seen that it would pay dispensary doctors far better to run a garage and posting establishment than to undertake the medical treatment of the poor of their districts. If the main recommendations of the report of the Irish Public Health Council were adopted, they would secure, said Dr. O'Sullivan in conclusion, a reasonably adequate medical service for the Irish people, but the establishment of a Ministry of Health for Ireland was absolutely essential.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

THE PASTEUR CELEBRATIONS.

THE week of celebrations devoted to the memory of Pasteur gave rise to considerable interest throughout France, and especially in Paris and Strasburg. The reception at the Elysée on May 24th was attended by Members of both Chambers, by the Diplomatic Corps, the staff of the Pasteur Institute, the family of Pasteur, and members of the staff of all the principal hospitals of Paris. The unveiling of the magnificent bust of Pasteur, of which Mr. Aronson is the sculptor, was an impressive function. After those present had filed one by one in front of the new monument they repaired to the library of the Institute where Mr. Pasteur Valléry-Radot, son-in-law of Pasteur, welcomed them. The visit to the museum, where instruments and apparatus used by Pasteur were displayed, and to the crypt where he is buried, were no less impressive. A cantata was sung by girl students in the amphitheatre of the Sorbonne before the delegates presented their addresses, and great enthusiasm was manifested. The unveiling of plaques commemorating the place of meeting of Pasteur and Lister in 1892 and of the institution where the former pursued his earliest studies in Paris, took place on May 25th and 26th respectively, and subsequently at the Ecole Normale Supérieure Mr. Paul Dupuy read a hitherto unpublished letter written by Pasteur to the Minister of Public Instruction in 1862, outlining the broad scope of his proposed researches. Many other functions of importance were held in Paris over the week-end, after which the chief centre of interest was shifted to Strasburg. Here the President of the Republic inaugurated the monument erected to the glory of Pasteur, and later the Pasteur Museum and the International Hygiene Exhibition. This museum was founded by subscription, open to professors of bacteriology throughout the world; their response to an appeal was prompt and most generous. The exhibition will be open from June till October, and during this period many important congresses, notably one on diseases of the skin and one on experimental cancer, will be held there.

MEDICAL COUPONS: A SCANDAL AND AN INQUIRY.

The medical coupons scandal, which has been much discussed in French medical circles, has spread to the public and has caused widespread indignation. In order to make clear the basis of the trouble it is necessary to set forth the arrangements for the giving of medical care to those disabled in the war. Article 64 of the law concerning pensions indicates that the

State owes to all soldiers and sailors included in the said Act, throughout their life, medical, surgical, and pharmaceutical necessities in respect of the wound or illness contracted or aggravated in service for which the pension has been given. The pensioners have the right on demand to have their names inscribed on official lists made out each year at the town-hall of the place in which they reside. This inscription gives them a right to gratuitous care only for those accidents or complications arising out of the wound or the illness which has entitled them to a pension. Pensioners have the right of free choice of doctor or pharmacist, payment being made by the State on a tariff determined by law or by Statutory Orders.

The Machinery of the Act.

The way in which this service functions is as follows. The pensioner having duly inscribed his name on a special list receives a book of coupons, medical and pharmaceutical. This book contains 12 leaflets with counterfoils. If the pensioner needs attention he goes to a doctor or sends for him, according to the gravity of his indisposition, and the following procedure takes place: (a) the doctor writes his orders on the counterfoil of the book, which should remain in the hands of the sick man; (b) the doctor signs and detaches from the book the slip recording his visit, which slip will serve as a voucher for payment of his services by the prefect of the Department; (c) the doctor writes on another voucher the prescription which the pensioner should procure at the chemist's, and he signs this order; (d) the chemist in turn detaches from the book and signs this voucher, which will secure for him payment by the prefect.

Certain Abuses.

This book of medical and pharmaceutical coupons constitutes, in short, what is practically a book of cheques given by the State to the disabled. No cheque can be drawn out and presented for payment without the signature of a doctor. The result is that most of the abuses in using coupons delivered according to regulations cannot be committed without the complicity of a doctor. Certain dangers were obviously inherent in the presentation to all those entitled to gratuitous service of blank cheques on the Treasury, but the State had apparently thought it possible to adopt this procedure because of the confidence felt in the honour of the medical profession, who are alone able to make the cheques valid. There are unfortunately, however, in all professions certain individuals who cannot be trusted to withstand financial temptation. The Medical Syndicates, realising the danger of the procedure employed by the State, have frequently demanded the right to appoint certain doctors to superintend and control this service, but the State did not think it well to allow this intrusion into official administration. Unfortunately, official administration was powerless to prevent abuses. The scandal has been disclosed owing to a little mistake made by an employee of the town council of Marseilles. He had received a request for medical coupons from a representative of one of the societies for the disabled, but instead of sending the coupons to the representative himself, he had sent them to the individual pensioners whose names were inscribed on the book. These pensioners, astonished to receive a book of coupons without having demanded one, never having been ill and never having used any medical coupons, came in protest to the town-hall. This protest provoked an inquiry into the administrative control, which soon revealed the fact that certain doctors had abused their powers of signature and had misappropriated, or attempted to misappropriate, considerable sums, often with the complicity of pensioners and chemists. An official inquiry into the whole question is now actually in progress. Though it originated at Marseilles the scandal has spread to many districts in France, such as the suburbs of Paris, and has led to certain arrests. It is impossible to give a precise figure of the sum of which the State has been thus defrauded; the daily press has suggested

22 million francs in three years, but this is certainly an exaggeration. The scandal has led prominent medical men to deliberate what punishment should be meted out to those medical men guilty of misconduct not only professional but civil. It has been suggested that an *Ordre de Médecins* might be created, comparable to that of barristers or solicitors, imposing formal guarantees of honour. MM. Xavier Vallat, Léon Daudet, and Ambroise Rendu are bringing forward a Bill with this end in view. The proposed Order would be constituted in each district by doctors who had been in practice there for at least five years, and would sit as a Council of Discipline to investigate any complaints which might be addressed to them as to frauds committed by registered doctors or by their authorised agents. The Council would be able to impose various penalties, from a simple reprimand to a permanent interdiction from the practice of medicine. This question of the creation of an Order of Doctors is arousing great interest here, and I shall have occasion to return to the subject.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

THE INDIGENOUS SYSTEMS OF MEDICINE IN MADRAS PRESIDENCY.

The Committee appointed by the Madras Government to consider the question of the recognition and encouragement of the indigenous systems of medicine (Ayurvedic and Unani) in vogue in the Presidency have issued a voluminous report. The essence of the report is summed up in the following words used by the Committee: "From the standpoint of science the Indian systems are logical and scientific, . . . self-sufficient, efficient and economical" (except in the surgical line). They also are of opinion that only through the practice of these systems, under present circumstances, can the State hope to bring medical aid within easy reach of the mass of the people; it is, therefore, incumbent on the State to explore their possibilities to the full. With regard to medical registration, the Committee say that this is necessary in the interests of the public as well as that of the practitioner. The purpose of medical registration is only to discourage dishonest practice of any particular system; absolute prohibition of unregistered practice, as obtaining in many States of America, is not suitable for present conditions in India, and what should now be attempted is the securing of certain rights and privileges to the registered practitioner, as is done in the United Kingdom. The first step, however, should be the establishment of an adequate number of medical schools and colleges, from which a sufficient number of efficient practitioners might be sent out year by year. Registration for practitioners of the Indian system must, of course, be a separate and distinct register of indigenous practitioners. There must be no confusion on this point.

The Committee think it absolutely necessary to establish a new department of Indian medicine under the direction of a Commissioner, the policy of this new department being controlled and directed by a "General Council of Indian Medicine." The new department will obviously require a large number of practitioners trained in Indian medicine, who should be "fully self-sufficient and efficient to deal with both medical and surgical ailments." To attain this end the Committee think it necessary that "the Government should immediately establish colleges and schools, hospitals and dispensaries for the Indian systems of medicine," and if present financial stringency makes this impossible, they suggest that the existing centres of European medical education and medical relief should be made to subserve the interests of Indian medicine as well as European, "especially as it is highly desirable that students of Indian medicine should come into actual touch with the practice of Western methods, especially on the surgical side."

This provision would seem to lead to just the confusion it is necessary to avoid.

Administrative Development.

The administrative development of the Indian systems seems to have taken up a large part of the Committee's time and attention. They recommend that the first task of the Commissioner of Indian Medicine should be to organise (1) a Medical Administration Committee, (2) a Library and Text-book Committee, and (3) a Medical Education Committee. They also recommend that, to satisfy present conditions, two types of practitioners are required, with two standards of proficiency. Practitioners of the lower standard should be multiplied as rapidly as possible, and these men may be expected to settle down, or take up employment, in rural areas; whilst the higher standard practitioner would provide the high-grade general and consultant practitioner, and would be utilised in the fields of teaching and research. Suitable provisions should, however, be made for the lower-grade practitioner to qualify himself for the higher grade. This arbitrary creation of two grades of doctors must be held as retrograde. The whole development of the medical profession has progressed by pursuing the exactly opposite policy.

The Committee recognise the value of Western influences, for they recommend that "every scheme of study of Indian medicine, whether Ayurvedic, Siddha, or Unani, should make adequate provision not only for the efficient training in subjects appropriate to itself, but also for the teaching of the essentials of whatever is valuable in Western medicine—e.g., anatomy, physiology, surgery in all its branches, bacteriology, medical jurisprudence, including medical ethics, history of medicine, and so on." But if the Indian systems are ready to adopt modern developments and advances of Western medicine, would it not be better for them to join up at once with the Western system, bringing with them any drugs of value or any methods of treatment which are an improvement on those now in use in the Western system? Recent researches in the Calcutta School of Tropical Medicine have shown that some of the Indian drugs are not only effective, but are even more effective than some in the B.P. The Western system is always ready to adopt methods of treatment which satisfy scientific investigation, but it is opposed, and rightly so, to secret remedies, such as are passed down from father to son in the Indian indigenous systems.

A Suggested College of Indian Medicine.

The Committee recommend the establishment in Madras city of a central college of Indian medicine and an associated hospital. The cost of these institutions is to be wholly met from State funds, and the resources of laboratories, dissecting rooms, clinical teaching, &c., of existing institutions are to be made available, as far as possible, for the purposes of the new College of Indian Medicine. Approved institutions of Indian medicine maintained or established by local bodies and private agencies should be afforded State aid and such other forms of State encouragement as are accorded to similar institutions of Western medicine.

Finally, the Committee are of opinion that an Indian university may well be expected to interest itself in the promotion of Indian medicine by adopting such measures as the following: (1) Establishment of a University Chair of Indian Medicine; (2) provision for post-graduate lectures and courses; (3) establishment of a Faculty of Indian Medicine, with boards of studies, examination boards, &c.; (4) the founding of research scholarships and fellowships. They ask the Government to make a provision of five lakhs in their next year's budget for the promotion of Indian medicine.

The Committee's report has been published at the request of the Legislative Council, but it is probable that the Government will take some time to come to a decision on the different points raised in the report. Meantime it will be the subject of keen discussion by

all interested in medicine in this Presidency. It may be observed that more than one local body in the mofussil has already opened Ayurvedic dispensaries in place of those equipped according to Western ideas. Madras, May 15th.

UNITED STATES OF AMERICA. (FROM AN OCCASIONAL CORRESPONDENT.)

The Right to Prescribe.

THE right to prescribe was stoutly maintained by a decision in the Federal District Court of New York, given on May 8th. Judge John C. Knox ruled that Section 7, Title II. of the Volstead Act was unconstitutional in a suit brought by the Association for the Protection of Constitutional Rights. Section 7 limits the amount of alcohol in any form which a doctor may prescribe for any one patient to one pint in ten days. This limitation the judge regarded as arbitrary and without justification. Probably the intention of congress was not to restrict the prescription of necessary medicinal alcohol, but to prevent abuse of their privileges by dishonest physicians who might be tempted to issue prescriptions without any good professional reason. Medical men point out, however, that there is no limit placed on the amount of alcoholic liquor which a clergyman may order for sacramental purposes, and they consider that the profession of medicine is worthy of as much confidence as that of the Church. The prohibition authorities announce that regulations will not be relaxed until the decision has been reviewed in the Supreme Court. They are confident that it will then be reversed.

Automobile Fatalities in 1922.

The National Automobile Chamber of Commerce has just issued a statistical record of the automobile accidents which have occurred in 1922. The total number of deaths from this cause is 14,000, as compared with 12,500 in the previous year. The death-rate from this cause is thus still rising ominously. In the last three completed years it has been 0.104, 0.110, and 0.133 respectively per thousand population. The number of motor-cars registered per thousand population has in the same period increased from 87 to 115, so that the number of deaths per car has slightly decreased. It is interesting to note from the statistics on mortality among doctors collected by the American Medical Association that medical men run a much greater risk than the general population. The number of deaths from automobile accidents in 1922 was 39, and 23 more deaths were due to collisions between trains and motor-cars. The number of qualified physicians in the United States is estimated at 146,000, hence it appears that their mortality-rate from this cause is more than three times that of the general population.

Trudeau Sanatorium.

The thirty-eighth annual report of the Trudeau Sanatorium, just issued, is a mine of information for the statistician. The tables which it contains have been prepared according to suggestions made by the National Tuberculosis Association. One of them gives the present condition of all patients discharged in each year from the year 1885 onwards, the cases are divided into three classes (minimal, moderately advanced, and far advanced) with three subclasses in each class according to the condition at the time of discharge (apparently arrested, quiescent, and active). Of the patients discharged during the last year nearly one-fourth had no r les, about one-tenth lost their r les, in nearly one-tenth the r les remained unchanged. Fewer r les were heard at discharge than on admission in nearly one-fifth, and more extensive r les in nearly one-tenth. R les developed in new areas in about one-third. The X ray results were encouraging, showing clearing in no less than 150 out of 226 cases. Fifty of these cases had, however, an increase or

development of r les. Dr. Heise, commenting on the want of parallelism between clinical and X ray findings, suggests that "r les appear early in the stage of activity when inflammation is not too severe and reappear when the inflammation subsides and allows air to flow freely in the smaller bronchi and bronchioles in sufficient volume to set the mucus in vibration, or that increased secretion of mucus may take place before any X ray evidence." The special diagnostic criteria adopted will be of interest to sanatorium superintendents.

KING EDWARD'S FUND. SPECIAL GRANTS TO LONDON HOSPITALS.

WE published last week a brief report of the annual meeting of King Edward's Hospital Fund for London, and we now print the list of grants in connexion with the Combined Appeal. The question of hospital accommodation has a very important bearing on the position of the voluntary hospitals, and it is interesting to note that an Ambulances Cases Disposal Committee has been given the powers of the General Council "to inquire and report to the President and General Council on the methods at present employed for ascertaining where bed accommodation is available at hospitals in the metropolitan and neighbouring areas for accident cases requiring admission; and on the proposal that daily reports of vacant beds should be supplied to the police and ambulance authorities; and to make such consequential recommendations as they may consider desirable."

Distribution of Proceeds of Combined Appeal.

Approval was given to the special distribution by the King's Fund of the proceeds of the Combined Appeal. The hospitals to which grants are made are those which accepted the invitation to co operate in the appeal. Out of 127 invited to co operate 120 accepted.

Name of Hospital.	Total grant.
Acton Hospital	4585
All Saints' Hospital	875
Antivivisection Hospital	980
Baby Clinic and Hospital (Kensington)	360
Beckenham Cottage Hospital	630
Belgrave Hospital for Children	1,825
Blackheath and Charlton Hospital	525
Bolingbroke Hospital	1,200
Brentford Cottage Hospital	85
British Hospital for Mothers and Babies (Woolwich)	760
Cancer Hospital	1,820
Canning Town Women's Settlement Hospital	855
Central London Ophthalmic Hospital	925
Central London Throat and Ear Hospital	1,000
Chelsea Hospital for Women	1,130
Cheyne Hospital for Children	1,325
City of London Hospital for Diseases of the Heart and Lungs (Victoria Park)	4,275
City of London Maternity Hospital	1,540
Clapham Maternity Hospital	825
Dreadnought Hospital (Seamen's)	7,415
East End Mothers' Lying-in Home	1,130
East Ham Hospital	260
East London Hospital for Children	5,200
Elizabeth Garrett Anderson Hospital	2,830
Eltham and Mottingham Cottage Hospital	180
Evelina Hospital	1,910
Finchley Memorial Hospital	625
Florence Nightingale Hospital for Gentlewomen	665
French Hospital	760
General Lying-in Hospital	1,000
German Hospital	2,430
Grosvenor Hospital for Women	725
Guy's Hospital	18,135
Hampstead General and North-West London Hospital	4,865
Hendon Cottage Hospital	790
Hornsey Cottage Hospital	850
Hospital for Consumption, Brompton (including Sanatorium at Frimley)	7,620
Hospital for Epilepsy and Paralysis	2,090
Hospital for Sick Children	8,700
Hospital for Women (Soho-square)	1,605
Hospital of St. John and St. Elizabeth	2,200
Hostel of God	345
Hostel of St. Luke	200
Infants' Hospital	725
Italian Hospital	490

Jewish Maternity Home	£195
Kensington, Fulham and Chelsea General Hospital	615
Kensington Dispensary and Children's Hospital	195
King Edward Memorial Hospital (Ealing)	795
King's College Hospital	18,150
London Fever Hospital	2,160
London Homoeopathic Hospital	2,985
London Hospital	23,360
London Jewish Hospital	1,120
London Lock Hospital	3,605
London Temperance Hospital	2,935
Maternity Charity and District Nurses' Home, Plaistow	2,090
Metropolitan Ear, Nose and Throat Hospital	370
Metropolitan Hospital	5,610
Middlesex Hospital	12,375
Middlesex Hospital Cancer Charity	1,545
Mildmay Memorial Hospital	525
Mildmay Mission Hospital	1,850
Miller General Hospital for South-East London	4,635
Mothers' Hospital of the Salvation Army	1,645
National Hospital for Diseases of the Heart	1,255
National Hospital for the Paralysed and Epileptic	6,185
Nelson Hospital (South Wimbledon)	695
Northcourt Hospital and Home for Sick Children (Hampstead)	1,185
North Islington Infant Welfare Wards	305
Paddington Green Children's Hospital	1,030
Passmore Edwards Hospital for Wood Green, &c.	415
Poplar Hospital for Accidents	2,145
Prince of Wales's General Hospital	6,065
Putney Hospital	350
Queen Charlotte's Lying-in Hospital	3,040
Queen Mary's Hospital for the East End	5,120
Queen's Hospital for Children	6,695
Royal Dental Hospital of London	1,545
Royal Eye Hospital	1,130
Royal Free Hospital	11,330
Royal Hospital, Richmond	1,230
Royal London Ophthalmic Hospital	4,140
Royal National Orthopaedic Hospital	5,665
Royal Northern Hospital (with which is amalgamated the Royal Chest Hospital, City-road)	13,650
Royal Waterloo Hospital for Children and Women	2,120
Royal Westminster Ophthalmic Hospital	1,065
St. Andrew's Hospital (Dollis Hill)	650
St. Bartholomew's Hospital	16,610
St. Columba's Hospital	825
St. George's Hospital	9,000
St. John's Hospital, Lewisham	2,315
St. John's Hospital for Diseases of the Skin	1,030
St. Luke's Hospital for Advanced Cases	595
St. Mark's Hospital	910
St. Mary's Hospital	8,240
St. Mary's Hospital for Women and Children, Plaistow	2,010
St. Monica's Home Hospital	355
St. Peter's Hospital for Stone	1,020
St. Saviour's Hospital for Ladies of Limited Means (Osna- burgh-street)	280
St. Thomas's Hospital	16,455
Samaritan Free Hospital for Women	1,300
Santa Claus Home	465
South-Eastern Hospital for Children (Sydenham)	1,485
South London Hospital for Women	2,525
Stoke Newington Home Hospital for Women	345
Streatham Babies' Hospital	205
University College Hospital	12,360
Victoria Hospital for Children	2,830
Walthamstow, Wanstead, and Leyton Children's and General Hospital	1,070
Weir Hospital (Balham)	410
West End Hospital for Nervous Diseases	1,795
Western Ophthalmic Hospital	715
West London Hospital	7,700
Westminster Hospital	7,210
Willesden Hospital	1,635
Wimbledon Hospital	525
Winifred House Invalid Children's Convalescent Hospital Home	300
Woolwich and Plumstead Cottage Hospital	145
Woolwich and District War Memorial Hospital	3,300
Total	£365,000

Special distribution by King Ed- ward's Hospital Fund, as above, viz.:		£	s.	d.	£	s.	d.
Payments on account, August, 1922	150,000	0	0				
Payments on account, October, 1922	100,000	0	0				
Final payments, June, 1923	115,000	0	0				
					365,000	0	0
Other forms of distribution					48,214	8	9
Total distribution					£413,214	8	9

TUBERCULOSIS.

Tuberculosis in Bradford.

THE Medical Research Council has issued as one of its Special Report Series an investigation by Dr. Harold Vallow of tuberculosis in insured persons accepted for treatment by the Bradford Health Committee. The period covered is July 15th, 1912, to April 30th, 1921, and a special study was made of the 584 cases of pulmonary tuberculosis applying for treatment in 1914-16. In addition, there were 20 cases of non-pulmonary tuberculosis. It was found that of the 204 patients in the first stage, only seven, or 3.4 per cent., had died from pulmonary tuberculosis, whereas of the 158 second-stage patients, 87, and of the 222 third-stage patients, 220 had died from pulmonary tuberculosis. The treatment given was sanatorium, hospital, and domiciliary treatment, but little information is vouchsafed as to the duration and character of the sanatorium and hospital treatment, and the character and extent of the domiciliary treatment given are not fully described. Apparently no distinction has been made between sputum-positive and sputum-negative cases, and owing to these and other important omissions, it is difficult to form an estimate of the value of the tuberculosis work in Bradford. It would be well if, in the preparation of reports of this kind, a uniform procedure were to be followed, so that a fair comparison could be made between the tuberculosis organisations in the various parts of the country.

The X Ray Diagnosis of Pulmonary Tuberculosis.

A small monograph¹ has recently been published by Dr. Max Cohn on this subject. A particularly interesting chapter is devoted to the X ray diagnosis of miliary tuberculosis, and of all the forms of pulmonary tuberculosis, the miliary is, according to Dr. Cohn, the one which presents the most definite X ray picture. The X ray diagnosis of miliary tubercle of the lungs is barely ten years old, but it has been worked up to such a pitch of perfection that this condition may now be detected by the X rays earlier than by any other method. Dr. Cohn supports this claim by an account of a soldier admitted to his hospital during the war for observation. There appeared to be little amiss with him apart from occasional attacks of lassitude; the ordinary physical chest signs were negative. But the X rays showed the characteristic fine mottling, and after six weeks the patient died, and the necropsy confirmed the X ray diagnosis of miliary tubercle. Again and again Dr. Cohn has diagnosed miliary tubercle of the lungs at a stage when the clinical diagnosis halted between influenza, empyema, and an interlobar effusion.

A Report on the Friedmann Vaccine.

The Committee appointed by the Prussian Landtag to inquire into the merits of the Friedmann vaccine has now issued its report.² It is not very helpful. This was, perhaps, inevitable. For as many members of the Committee had long ago ranged themselves on one or other side as inveterate enemies or enthusiastic advocates of the remedy, a unanimous report could hardly have been expected. The main report is a lukewarm analysis of the results achieved, and the nine members of the Committee not signing this report have dissociated themselves from it in two groups, the one insisting that the report is too favourable, the other too unfavourable. It would, therefore, seem that the result of the work of this Committee is to prove that the Friedmann remedy is useful, useless, neither, or both.

¹ Tuberkulose Bibliothek. Die Lungentuberkulose im Röntgenbilde. Leipzig: Johann Ambrosius Barth. 1923.

² Deut. med. Woch., April 13th, 1923.

DURHAM MEDICAL GRADUATES ASSOCIATION.—The annual meeting will be held at the College of Medicine, Newcastle-upon-Tyne, on June 25th, at 5 P.M., and the annual dinner at 7.45 P.M. on the same day in the King's Hall, Armstrong College. Any Durham medical graduates who are not already members of the Association and who desire to join, are requested to communicate with the hon. secretary, (North), Royal Victoria Infirmary, Newcastle-upon-Tyne.

THE OCTOCENTENARY OF ST. BARTHOLOMEW'S HOSPITAL, 1123-1923.

THE proceedings in connexion with the Octocentenary of St. Bartholomew's Hospital began on Tuesday, June 5th, by a solemn service in the church of St. Bartholomew-the-Great, Smithfield, all that remains of the Priory of the Augustinian Canons Regular founded by Rahere in 1123. The address was given by the Bishop of Chester, a son of the late Sir James Paget whose life and work was so closely interwoven with St. Bartholomew's. The service was followed by a solemnity in the hospital square, Canons Regular of St. Augustine of 1923 commemorating with praise to God the Founding of St. Bartholomew's Priory by Canons Regular of St. Augustine of 1123. A herald, attended by Yeomen of the Guard, read the proclamation commanding, in the names of the Prince of Wales, President of the Hospital, the Lord Mayor and the Aldermen of London, and the treasurer and governors of the Hospital, that the celebrations should begin, and there followed a series of pageants representing episodes in the history of the hospital—the return of Rahere from his pilgrimage in Rome in 1123 and his meeting with Richard, Bishop of London; the presentation of the Charter by Henry VIII.; and hospital work in modern times.

On the same day the Prince of Wales received addresses in the Guildhall, London, from delegates from all parts of the world representing the Church, the universities of the Empire and the United States, and the learned societies of England, Scotland, and

St. Bartholomew's Hospital: the Present.



Bartholomew's Fountain in the Square which will be retained whatever is rebuilt. (From Norman Moore's "History of St. Bartholomew's Hospital.")

St. Bartholomew's Hospital: the Past.



Rahere Ward in 1832, after a contemporary drawing. (From Sir D'Arcy Power and Mr. H. J. Waring's "Short History of St. Bartholomew's Hospital.")

PROCLAMATION.

BARTHOLOMEW FAIR,

June 6th, 7th, and 8th, 1923.

THE Right Honourable Edward Cecil Moore, Lord Mayor of the City of London, and his Right Worshipful Brethren the Aldermen of the said City, Straightly charge and command, on behalf of our Sovereign Lord the King, that all manner of persons of whatsoever estate, degree, or condition they be, having recourse to this Fair, keep the peace of our Sovereign Lord the King.

That no manner of persons make any congregations, conventicles, or affrays, by which the same peace may be broken or disturbed, upon pain of imprisonment and fine, to be made after the discretion of the Lord Mayor and Aldermen.

Also, that all manner of sellers of wine, ale, or beer sell by measures sealed, as by gallon, pottle, quart, and pint upon pain that will fall thereof.

And that no person sell any bread except it keep the assize and that it be good and wholesome for man's body upon pain that will fall thereof.

And that no manner of cook, pye baker, nor huckster sell nor put to sale any manner of victual, except it be good and wholesome for man's body upon pain that will fall thereof.

And that no manner of person buy nor sell but with true weights and measures, sealed according to the statute in that behalf made, upon pain that will fall thereof.

And that no manner of person or persons take upon him or them within this Fair to make any manner of arrest, attachment, summons, or execution, except it be done by the officers of this City thereunto assigned, upon pain that will fall thereof.

And that no person or persons whatsoever within the limits and bounds of this Fair presume to break the Lord's day, in selling, showing, or offering to sale, or in buying or offering to buy, any commodities whatsoever; or in sitting, tipping or drinking in any tavern, inn, alehouse, tipping-house, or cook's house; or in doing any other thing that may tend to the breach thereof, upon the pains and penalties contained in several Acts of Parliament, which will be severely inflicted upon the breakers thereof.

And finally, that what persons soever find themselves aggrieved, injured, or wronged by any manner of person in this Fair, that they come with their complaints before the stewards in this Fair assigned to hear and determine pleas, and they will minister to all parties justice, according to the law of this land and the custom of this City.

GOD SAVE THE KING.

It is his Lordship's pleasure that this Fair do finally end on Friday, 8th June, 1923, at Seven o'clock.

EDWARD C. MOORE, Lord Mayor.

Ireland. Lord Stanmore, treasurer of St. Bartholomew's Hospital, presented the Prince with a commemorative gold medal on behalf of the governors, which bore on the obverse the head of Rahere the founder, and on the reverse that of Harvey, the discoverer of the circulation of the blood, who was associated with the hospital as a physician from 1607 to 1643. After the Prince had presented commemorative medals to Lord Bearsted (for the Lord Mayor), to Lord Stanmore, and to Alderman Sir John Baddeley, chairman of the Octocentenary Grand Committee, congratulations were offered by the Bishop of Worcester on behalf of the Church, by Sir Archibald Garrod on behalf of the universities of the United Kingdom, by Dr. Alexander Primrose, of Toronto, for the Dominions and India, while Dr. W. H. Welch spoke in the name of the Rockefeller Institute,

Tableaux in the Great Hall.

On Wednesday, June 6th, and the following day a series of tableaux, illustrative of events in the history of the hospital, were shown in the great hall. They represented Rahere the Courtier; Rahere in a Dream Delivered from a Dragon by St. Bartholomew; the Building of the Hospital by Rahere; the Crowning of the Victor at a Tournament in Smithfield in 1422; a Girl Cured at the Tomb of Rahere; Henry VIII. giving the Deed of Covenant to the Lord Mayor at an Audience at Bridewell in the Presence of Prince Edward, afterwards King Edward VI.; King Charles I. and Harvey; Hogarth Painting the Pool of Bethesda; and Modern War Work. The most impressive picture was that of the venerable, austere, and yet kindly figure of St. Bartholomew protecting

St. Bartholomew's Hospital: the Future.



Sketch of one of the alternative plans for rebuilding the Ward Blocks, suggested by Mr. H. J. Waring and Mr. T. A. Lodge, A.R.I.B.A., in the "Short History."

and Sir Walter Fletcher on behalf of the learned societies of England. The Prince, in his reply, said that it was not impossible that a few aged men who had fought at the Battle of Hastings might have passed their last days in this old house of healing; from that period up to the present time, when Englishmen who fought in the latest and greatest of our wars had benefited by the knowledge gained at St. Bartholomew's, we could point with justifiable pride to a list of distinguished men, such as William Harvey, John Abernethy, John Radcliffe, and Percival Pott, who had been members of the staff.

Bartholomew Fair was opened by the Lord Mayor on June 6th in the presence of a large audience. The herald read aloud the proclamation given on the opposite page.

The fair was well attended every day—booths and side-shows proving hardly more attractive than the genial pranks of the lads in Tudor dress who, throwing aside all thoughts of studies for one glorious week, worked as hard in other directions.

the terrified Rahere from a dragon and claiming as his reward the building of a hospital dedicated to his name. All the tableaux were beautiful in conception and arrangement, and the appropriate music, contributed by the orchestra of the Royal Academy of Music, enhanced the pleasure given to the eye and ear.

In the afternoon there was a reception at the Royal College of Surgeons, the guests being received by Sir Anthony Bowlby, the President, and Sir D'Arcy Power, the Vice-President.

Old Students' Dinner.

The old students of the hospital dined together in the noble precincts of the Merchant Taylors' Hall on the evening of June 6th. Mr. H. J. Waring took the chair, and seated around him at the high table were a large number of the distinguished delegates attending the celebration from all parts of the United Kingdom and the Dominions. Mr. Waring, in proposing "The Hospital," referred to the three critical periods in its

history, the foundation by Rahere, the granting of the Charter by Henry VIII., and the decision 20 years ago to stay in the city. He mentioned the special needs of the immediate future as an extended obstetrical department and clinical laboratories attached to the wards. Whether the wards, which dated from 1730 to 1760, should themselves be rebuilt was still in suspense, but for himself he felt that their modernisation would be the thankless task of converting an out-of-date factory. Lord Stanmore, treasurer to the hospital, in responding, mentioned new sources of income which had been found, remarking, "This year we shall make both ends meet." The governors, he said, were unanimous that the voluntary system should be maintained and the hospital made fit for all requirements. A committee of five—two governors, two members of the medical staff, with the treasurer as chairman—had been empowered to choose plans and engage an architect. Sir William Lawrence, in proposing "The Medical College," mentioned the primary need for more operating theatres. He alluded to the very pleasant relations always existing between students and staff, and paid a tribute to the work of Dr. T. W. Shore, the Dean. Dr. Shore, in responding, alluded to the curious blend of ancient and very modern in the Medical College, which, as a separate chartered institution, was less than two years old. There was no record when students first attended, but certainly as early as 1662. Funds were wanted for a new residential college, for general endowment of the Medical College, and for research, besides the other objects named. Dr. H. Williamson proposed "The Guests," spiritual and temporal, in a brilliant and witty speech, and the toast was responded to by Lord Methuen, chairman of King's College Hospital Committee (delegate of the Bishop of Salisbury), Prof. T. K. Monro (delegate of the University of Glasgow), and Prof. W. H. Welch (delegate of the Rockefeller Institute). The last-named gave expression to the conviction that it is the teaching hospital that does the best by its patients.

Freemasonry: Rahere Lodge.

A meeting of this Lodge was held, in connexion with the celebrations, on Friday, June 8th, at the Freemasons' Hall, Great Queen-street, London, when some 350 members of the medical profession and their guests, including many Grand Officers, were present. H.R.H. the Duke of Connaught, Most Worshipful Grand Master, honoured the Lodge with his presence, and, on the motion of W.Bro. R. J. Reece, P.G.D., seconded by Sir D'Arcy Power, P.G.D., was elected an honorary member and was presented with the Lodge jewel. His Royal Highness, in thanking the members for the honour they had conferred upon him, recalled that the Rahere Lodge was consecrated by his brother, King Edward VII., when Prince of Wales, and expressed the hope that the Lodge would continue to flourish in the future as it had flourished in the past. On the motion of W.Bro. H. Morley Fletcher, P.G.D., seconded by W.Bro. Harold Pritchard, H.R.H. the Prince of Wales, P.G.W., was also elected an honorary member of the Lodge. During the evening Bro. Girling Ball was installed in the Master's chair by the M.W.Pro Grand Master, Lord Amptill, assisted by the retiring Master. The new Master invested his officers as follows: I.P.M., W.Bro. Harold Pritchard; S.W., Bro. Arnold Stott; J.W., Bro. Reginald M. Vick; Chaplain, Rev. R. Beaty Dand; Treasurer, W.Bro. Ernest Clarke, P.G.D.; Secretary, Bro. Geoffrey Evans; D.C., W.Bro. C. H. Perram, P.G.D.; S.D., Bro. H. D. Gillies; J.D., Bro. Langford Moore; Assist. D.C., W.Bro. H. Edmund G. Boyle, L.R.; Almoner, W.Bro. E. Laming Evans, L.R.; Organist, W.Bro. L. W. Bathurst, L.R.; Assist. Sec., Bro. T. H. Just; I.G., Bro. H. W. Henshaw; Senior Steward, W.Bro. E. P. Furber, P.P.G.J.W. Surrey; Stewards, Bros. I. de Burgh Daly and E. D. Whitehead Reid. The Rahere Lodge, which was founded by St. Bartholomew's men, was the first of the hospital lodges, of which there is now a good number, and it

must certainly be unique in the annals of private lodges for its Master to have been installed by the M.W. Pro Grand Master in the presence of nearly a hundred Grand Officers.

Obituary.

EDWARD JOHN STEEGMANN, O.B.E.,
M.B., B.S. DURH., D.P.H.

WE regret to announce the death of Dr. E. J. Steegmann, which took place at a nursing home in Leeds on June 8th.

Edward John Steegmann was born in October, 1867, and was the only son of Mr. E. Birkhead Steegmann, of Nottingham. After a school education, which was much interrupted by ill-health, Steegmann entered St. Mary's Hospital, whence he qualified M.R.C.S., L.R.C.P., and L.S.A. in 1892, and then proceeded to Durham, where he graduated in medicine and surgery in 1894, after acting as additional medical officer of health for the port of Newcastle during the period of cholera prevalence in 1892. Returning to London he became a house surgeon at St. Mary's Hospital and subsequently house physician at the Brompton Hospital, and then settled in private practice at Grove Park, Chiswick. His principal interests from the outset lay in the direction of public health work, for which he qualified himself by taking the D.P.H. in 1897, by becoming a member of Gray's Inn, where he was ultimately called as a barrister, and by teaching hygiene at St. Mary's Hospital and elsewhere. In 1901 he was appointed medical officer of health for the combined district of Heston, Hounslow, and Isleworth, a post which he held till 1909, together with that of medical officer of the Dockwell Small-pox Hospital. In this appointment Dr. Steegmann developed, with notable success, a variety of practical health measures which are now commonplace, but at that period were unusual. In 1901 also he undertook, at first concurrently with his work as medical officer of health, and later as a whole-time appointment, the arduous task of secretary to the Royal Commission on Human and Animal Tuberculosis. For ten years work was undertaken by the Commission on a scale quite without precedent in any Government-supported medical investigation in this country.

In all this period Dr. Steegmann was indefatigable as a manager and director of the Stansted research establishments and as interpreter of the decisions of the Commission. He was specially successful in securing for it the coöperation and interest of the Government departments concerned, and the effective presentment of the reports of the investigations. When the Commission terminated in 1911, Dr. Steegmann had good reason to anticipate that its scientific workers, together with the experimental farms and laboratories, would be taken over by the Local Government Board as an official research institute and the decision against the project caused him great disappointment. Between 1911 and 1914 he completed the final volumes of the Commission's reports and occupied himself with literary and other interests from his house at Isleworth, where he had a wide circle of friends. In 1914 he was called on at once for active service as a medical officer of the Royal Naval Volunteer Reserve; he went afloat in a hospital ship with the North Sea Fleet, and was with the Antwerp expeditionary force; subsequently he was transferred to the Mediterranean and served as surgeon respectively in the *Sir Thomas Picton* and the *Skirmisher*. In September, 1917, he was invalided home but was employed at the Admiralty, with the rank of Fleet-Surgeon, R.N.V.R., for special sanitary investigations. These included an investigation of the sanitary condition of Osborne College, and later a special mission, in relation to malaria, to Sierra Leone, Dakar, and other East African ports. Dr. Steegmann's work at the Admiralty, by the direction of Sir H.

Norman, the Director-General, was largely instrumental in bringing about the present system by which the Royal Naval Medical Service maintains specialist sanitary officers at the great naval seaports. A temporary appointment at the Ministry of Health, at the time of its creation, enabled Dr. Steegmann to take up a new interest—namely, the organisation for health purposes which it was then proposed to create at the League of Nations—and in 1921 his services were lent to the Geneva Office in order that preliminary measures might be organised to establish a health section of the League. Dr. Steegmann accepted this mission on condition only that he should not be considered as a candidate for any permanent medical post under the League, which he might decide to recommend, and at the end of the year, when the present medical director was appointed, he retired from this work.

For some years Dr. Steegmann had been handicapped by chronic ill-health, and the leisure at length obtained proved unhappily to be of short duration. He married in 1895, Mabel, daughter of Rear-Admiral Barnett, R.N., who died in 1914, and is survived by two sons.

GEORGE FREDERICK MURRELL, M.B. LOND., PHYSICIAN, ROYAL BERKSHIRE HOSPITAL.

THE death of Dr. G. F. Murrell at the age of 55 years after a brief illness, has been felt as a severe loss by the whole of Reading and the neighbourhood. Recently he had suffered from a carbuncle, from which he apparently recovered, and after a short change in the country resumed his work. It was obvious, however, that he was not well, and no doubt his resisting power had been severely diminished. At the end of May he developed cellulitis of the scalp of streptococcal nature, and the end came on June 5th with a virulent broncho-pneumonia and thrombosis of the cavernous sinus.

Born at Ealing, Dr. Murrell received his education at University College School and St. Bartholomew's Hospital. He qualified M.R.C.S., L.R.C.P. in 1890, and graduated M.B. Lond. in 1893. He subsequently held the posts of house surgeon at St. Bartholomew's Hospital, and house surgeon and house physician at West London Hospital. After serving as ship's surgeon on two occasions he settled in Reading in private practice in 1896, where from the beginning his high ideals, no less than his professional skill, made his practice successful. He gained the respect and regard of his colleagues, and the confidence and affection of his many patients. In 1913 he was elected assistant physician to the Royal Berkshire Hospital, and since 1919 he held the position of full physician. During the war, as captain in the R.A.M.C. T., he served first in Oxford, and afterwards as officer-in-charge of a large hospital in Reading.

Outside his profession Dr. Murrell interested himself in many social activities, was warden of his church, and a Past Master of his Masonic Lodge, and assisted the Conservative party in numerous elections that took place in the borough. A memorial service on June 8th was attended by many colleagues, patients and fellow-citizens.

Dr. Murrell leaves a widow, two daughters, and a son to mourn their loss.

THE League of Nations Union, in coöperation with the International Labour Organisation of the League of Nations, is organising a conference on Industrial Health, which will take place on Tuesday and Wednesday, June 19th and 20th, in the Library of the Royal Sanitary Institute, 9, Buckingham Palace-road, London. The objects of the conference will be, first, to examine how the Organisation may best assist in improving the health and welfare of industrial workers, and secondly, to secure closer coöperation between the medical profession and the Organisation and to arrive at constructive suggestions for future work. Among those who will read papers are Lord Burnham, Mr. J. H. Thomas, Colonel J. A. A. Pickard, Dr. T. M. Legge, Miss Constance Smith, and Mr. E. L. Poulton.

Correspondence.

"Audi alteram partem."

THE HOSPITAL TREATMENT OF PANEL AND OTHER PATIENTS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of June 2nd there appeared a letter from Mr. Raymond Shaw on the claims of non-panel practitioners, and also the abstract of a scheme for the hospital treatment of middle-class patients discussed by Sir Napier Burnett at the conference of the British Hospitals' Association at Sheffield. The two questions come into such close relationship with each other in actual practice that a few further remarks may be permitted.

That a great deal of dissatisfaction exists among the public with regard to the National Health Insurance Act (medical benefit) can hardly be contradicted. Various reasons for this have been mentioned by lay persons at different conferences, such as crowded surgeries, too many patients on doctors' lists, different treatment of panel and private patients, and so on. From the medical standpoint, while many practitioners—perhaps the majority—accept the principle of the scheme, they complain that the method generally adopted, by reason of lack of time principally, of treating symptoms by drugs instead of endeavouring to find out the cause of the symptoms by detecting the disease in an early stage, is a bad form of medical practice. Another objection is that all panel doctors, keen or indifferent, are on the same plane. There is no chance of advancement. Mr. Shaw mentions another fault of the system—the absence of freedom of choice of doctor under a contracting-out clause as was promised. For instance, a patient with tuberculosis may not be treated by whom he likes unless at his own expense, but has to be under the directions of the local tuberculosis officer, who, in many cases under the present arrangements, is more often than not a public health official—possibly a very good one—but no clinician.

The lot of the middle-class private patient is not a much happier one. To investigate an illness properly in many cases demands the services of several practitioners with experience in different branches of medicine. The result is a great expense to the patient or haphazard treatment. To meet the difficulty where hospital treatment is necessary, Sir Napier Burnett outlines a scheme whereby for a premium of £2 per annum, persons with incomes of £250 to £600 or so (Class B) should be maintained and treated in hospital when occasion arises. To administer such a scheme, it is suggested that the requisite machinery might be provided either by some private insurance company or by the existing contributory scheme organisation. Any scheme which will help to solve the problem of the treatment of the middle-class patient is to be welcomed. The recognition of the necessity for the provision of hospital accommodation for these people betokens that at last hospitals are no longer looked upon as charitable institutions in the old sense, and the further idea of payment for the members of the hospital staffs will eventually dispel the idea of the "voluntary" system which in many towns exists on paper only. There are some who will shed no tears over the passing of the "voluntary" system with its highly feudalistic and privileged system of "letters" and "turns."

In regard to the payment of the members of the staff, some may regard this as an additional asset to all the advantages already possessed—e.g., of opportunity for research, position in the profession, &c., and an extra handicap to the general practitioner outside the hospital. Such objections will be met by the necessary provision of a great many more hospital beds than at present exist, and naturally more

appointments. In my opinion, every medical man who so desires should be attached in some capacity to a hospital, whether it be of the cottage, general, or teaching variety. There will be plenty of room for all practitioners to keep in touch with hospital methods if the system at present in vogue in some towns of one man doing several jobs is abandoned. Many practitioners would welcome the extension of the National Health Insurance service on rather differently constituted lines and with the faults eliminated, and linked up with an enlarged hospital system where they can take at least some part in the treatment of their patients. To some a State medical service is a terrible thought. Their fears might be alleviated if such an eventuality could be tempered by the representation in such a service of nominees from the hospital committees as at present constituted and from the local authorities. That such a combination is not incompatible with good work was well exemplified in the war, where the united efforts of the R.A.M.C. and Red Cross achieved no mean success.

It is the fashion to throw stones at Government departments and their officials. But an example of sound medical work carried out by a State department has, in my opinion, been furnished by the Ministry of Pensions since the Armistice. Having seen a good deal of the work among pensioners, I am prepared to say, after due consideration, that in the area of which I have knowledge the work has been carried out with the greatest concord, and, thanks to exceptional administrative ability, with the highest efficiency. The result of the coöperation in the examination and treatment of men disabled in the war has been, in my opinion, one of the finest practical demonstrations of the value of team-work, both to the patients and to the medical profession. In any discussion of schemes to enlarge the scope of the Insurance Act or to alter the position of the hospitals, it will, I think, be a misfortune if the experience of the Ministry of Pensions, in dealing with large numbers of disabled men, is not invited, and carefully considered.—I am, Sir, yours faithfully,

WILLIAM STOBIE, M.D., M.R.C.P.

Oxford, June 5th, 1923.

IN MEMORY OF JOHN CHIENE.

To the Editor of THE LANCET.

SIR,—May I add a more personal tribute to the biographical notice of the late Prof. Chiene in your issue of last week? John Chiene has been away from active work for so long that he is hardly known to the present generation except as a great name, and a man about whom innumerable good stories are told. But in his day he was far more. No one in the Edinburgh school has ever wielded a stronger personal influence, or done so much to mould the characters of his students. In our time there were many fine teachers, but none who seized upon the hearts and imaginations of his boys as Chiene did. One can see reflexes of him in nearly all the senior Edinburgh men of to-day, and all his old students find themselves unconsciously adopting his mental attitude from time to time. His uprightness was a proverb, his essential cleanness of mind and clearness of thought were a daily lesson, and his kindness and humanity reached the heart of even the most heedless. With all these went the desire to see things as they really are, and to reach the essential. I am not sure that he was a great surgeon, as we understand the phrase nowadays. He did his best work during a difficult transition period, when the old surgery was done, and men were groping about rather blindly for the methods that were to make the new surgery possible. His mind, when I knew him best, was solid rather than quick, and he had neither the mental nor physical nimbleness which the new surgeon requires.

But this very defect helped him in another sphere, for what he mastered became part of himself, and he had an unequalled power of handing it on to others. It is not necessary for the student to know the very latest details in any subject; what is wanted is that

he should get a grip of principles, and should learn to observe and to draw conclusions from his observations. It was in driving principles, observation, logical reasoning into our heads that Chiene excelled. He was a master of the Socratic method, he made us observe and think for ourselves as no one else did, and he often clinched the result with some pithy or witty saying that was never forgotten. It is a pity indeed that he never collected these sayings; most Edinburgh teachers use as many as they can remember.

He was beloved as few teachers have been. We did things for him not in the hope of praise—he was chary of that—but because we loved him, and our reward was to feel that he trusted us. The time spent under him must be to thousands, as it is to me, a happy memory.

I am, Sir, yours faithfully,

Edinburgh, June 9th, 1923.

G. LOVELL GULLAND.

THE RÔLE OF THE TOOTH-BRUSH.

To the Editor of THE LANCET.

SIR,—In a letter which appeared in THE LANCET of June 2nd Sir John O'Connor delivers a startling onslaught on the tooth-brush. He attributes to its use a large number of ills, and evidently regards it as a useless and stupid fetish. Yet there is something to be said for the habit of brushing the teeth, not merely as a symbol of a certain standard of personal decency, but for its actual value in cleansing the mouth. The comparison between the anal canal and the mouth, which Sir John O'Connor draws, is obviously misleading. There is no natural method of cleaning the former region other than regular defæcation, which can be compared with the self-cleansing action of mastication. In a state of nature this latter function of the jaws and tongue should be sufficient, but since the dietetic habits of modern civilisation have seriously impaired the efficiency of the natural methods of cleansing the mouth, it seems not unreasonable, and, indeed, in accordance with physiology, to supplement Nature by methods so like her own.

In an interesting paper on the comparative anatomy of the mouth and tongue, recently read before the Odontological Section of the Royal Society of Medicine, Dr. C. F. Sonntag described the elaborate cleansing mechanism present in many animals. In the carnivora the tongue is studded with large, rough papillæ, so that the organ may be fitly regarded as a natural tooth-brush, and is used in that way with great efficiency. Not only the tongue, but other parts of the mouth are similarly furnished in many species. Dr. Sonntag showed that the digestive apparatus and the cleansing mechanism of the mouth were in inverse ratio. In the ruminants with elaborate stomachs papillæ were few; in carnivores with a simple type of stomach the tongue was rough. In man this cleansing mechanism is not so well marked, yet the tongue is capable of playing a greater part in mastication than many individuals allow, or than is recognised in the account of mastication given in text-books on physiology. The manners of good society do not permit the natural use of the tongue and lips in this way. Though this may be deplored on the grounds of hygiene, yet it is doubtful whether any enthusiast would wish to see the after-dinner habits of the larger carnivores become an established feature of modern society. This, therefore, may be taken to justify the use of the tooth-brush as an effort to imitate Nature. Being carried out in private, it does not offend the eye, though it is admittedly less efficient.

The value of the tooth-brush has undergone many vicissitudes in dental opinion. By some it has been, and still is, condemned as a useless habit which may indeed do harm. Latterly the standard of value has risen, and the majority of dentists, though alive to its abuses, allow to it a useful place in oral hygiene, if used intelligently. The tooth-brush may do harm in three ways: If used promiscuously by several individuals a tooth-brush may spread infection. The very idea is revolting to the decent mind, but it is

well to remember that among children of the poorer classes this may easily occur, and the possibility should not be overlooked. Then, again, a tooth-brush, if not cleansed after using, may easily harbour bacteria and may infect the gums instead of cleaning them. Lastly, the tooth-brush, if used with misguided zeal, can abrade both gum and tooth. Yet these risks can be guarded against. The brush should be small, the bristles should be stiff and serrated. Crosswise brushing should be avoided, for it is this which abrades the teeth and gums. The chief movement should be from the gums on to the teeth. In this way the gum receives healthy friction and the thin free edge round the necks of the teeth is not injured, neither will the enamel be eroded. The occlusal surfaces of the teeth, so often neglected, should receive attention. Following this the mouth should be rinsed, not by a passive lolling of the head but by using the muscles of the cheek and tongue to their fullest capacity. The brush should be washed in running water and either dried, or perhaps still better, placed in some antiseptic solution. Since, even with these precautions, its sterility cannot be long ensured, it should be discarded frequently. The dentifrice should be free from gritty abrasive particles. It is doubtful, however, if its chemical content is of any real significance, other than giving a pleasant freshness to the mouth and conferring on its user a somewhat fallacious feeling of security.

There cannot, of course, be any question whatever of disinfecting the mouth by dentifrice or mouth-wash. The experiments of A. L. Bloomfield have shown this conclusively.¹ Chemical and mechanical methods of cleansing the mucous membrane, so vigorous that applied as a routine method of personal hygiene they would merit your correspondent's adjectives of "inane" and "insane," completely failed to diminish appreciably the number and varieties of organisms present. The real function of tooth-brushing is mechanically to remove debris from the mouth. The purest carbohydrate, if left in contact with the teeth, will cause caries, and the use of the tooth-brush, in so far as it helps to prevent stagnation, is thus a useful and hygienic habit.

I am, Sir, yours faithfully,

Wimpole-street, W., June 6th, 1923.

A. T. PITTS.

IS DIABETES MELLITUS A PROGRESSIVE DISEASE?

To the Editor of THE LANCET.

SIR,—Dr. O. Leyton's question may be read with advantage in conjunction with the paper by Dr. G. Graham and Dr. C. F. Harris, published last week in the same number of THE LANCET. The views expressed by all of them are essentially the same. We have now had a sufficiently long experience of cases treated by alimentary rest to justify the statement that diabetes is not essentially progressive under proper dietetic conditions. Even before the advent of insulin observers interested in the subject had become familiar with cases that had become apparently stationary as a result of treatment by alimentary rest at an early stage of the disease. Unfortunately, in many cases the low caloric value necessary to keep the patient free from hyperglycæmia is inadequate to enable him to carry on any tolerable kind of existence. It is just here that insulin seems to me to be coming to the rescue. By its aid the caloric value, especially if derived from protein, fat, and 5 per cent. vegetables, can be raised to a level compatible with reasonable comfort without producing hyperglycæmia. And evidence is accumulating that if insulin be used in this way there is an increase in carbohydrate tolerance. Used otherwise, insulin appears to me to be merely an expensive palliative. I find myself, therefore, in agreement with Drs. Leyton, Graham, and Harris rather than with Prof. Maclean.

I am, Sir, yours faithfully,

W. LANGDON BROWN.

Cavendish-square, W., June 9th, 1923.

¹ Johns Hopkins Hospital Bulletin, July, 1922.

THE STEINACH OPERATION.

To the Editor of THE LANCET.

SIR,—Through the courtesy of a medical friend I was given the opportunity of witnessing Dr. Burchardi perform upon him the Steinach operation for enlarged prostate. The operation, although simple and quickly performed, requires skill and delicacy of manipulation to avoid wounding the blood-vessels and nerves of the cord, and thereby producing atrophy or gangrene of the testicle. If the prostate is much enlarged, Dr. Burchardi ties and severs both vasa. The resulting sterility does not destroy sexual desire or capacity for intercourse, but often has a rejuvenating effect. My old friend, the late Dr. Reginald Harrison, was, I believe, the first surgeon to advocate and perform section of the vasa for enlarged prostate, but his operation proved a failure owing, I imagine, to the fact that the blood-vessels and nerves of the cord were also severed. Nothing was known in those days concerning the internal secretion of the testicle. Probably Dr. Harrison's failure is the chief cause of the scepticism existing among the medical men of this country with regard both to the effect on the prostate of section of the vas and the more general effect of rejuvenation.

I am, Sir, yours faithfully,

Streatham, June 12th, 1923.

R. MANSELL-JONES.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR,—Last year, having been commissioned to report on the Spahlinger treatment, I visited Geneva, and, by the courtesy of Mr. Spahlinger, was allowed to examine his cases under treatment and cases discharged cured. I was given access to the clinical and photographic records, and shown in detail the laboratory with its many original mechanical devices for the production of serum and vaccine on a large scale. On returning to London I examined a further series of cases which had been treated in 1913 and 1914.

I believe that Mr. Spahlinger has discovered a means of dealing successfully with all types of tuberculous infection in any stage. The method of preliminary disintoxication with serum enables us to be hopeful even in the most advanced cases, and, by means of subsequent vaccination, relapse is effectively guarded against. By using both human and bovine bacillary strains the infection, whether pulmonary or non-pulmonary, may be equally successfully treated. Of even greater significance are the possibilities opened by the use of the vaccine prophylactically. It has been shown by Mr. Spahlinger that vaccination produces a powerful immunity in cattle as well as in human beings. Are we not here shown a clear road to the ultimate eradication of this scourge?

The majority of medical men appear to be still either ignorant or uninterested in this treatment. Among the interested who are not favourably impressed are those who condemn it as a "secret remedy," or who say that, without knowing the minute details and technique of preparation, they are unable to express an opinion on its scientific value from a bacteriological point of view. Mr. Spahlinger makes no secret of his theories, bacteriological principles, or laboratory methods. Surely these in conjunction with the clinical evidence are sufficient: the precise formula would not help most of us in judging its efficacy. We have already had many theoretically sound, but clinically useless, methods of treatment for this disease. The other class of critic who impatiently demands further proof is unmindful of the number and high reputations of the men who, having used only partial sera, have shown such extraordinary results.

I am, Sir, yours faithfully,

HUGH A. WYLLIE, M.B., B.S. Adelaide.

London, June 9th, 1923.

DEFECTIVE LIPOLYSIS IN DIABETES
AND CANCER.*To the Editor of THE LANCET.*

SIR.—The discoverers of insulin have shown that this substance not only has an effect on the blood-sugar but also on the utilisation of fat. This utilisation of fat is defective in diabetes, and insulin markedly improves it and rapidly removes any lipæmia if present. This latter action is specially interesting to me because for many years various aspects of the fat-splitting action of the pancreas have been the object of research by myself and other workers in this laboratory.¹ The main outcome of this work has been to show that lipase in extracts of the pancreas consists of two components, one of which, following current nomenclature, is spoken of as the *coenzyme*, and the other *inactive lipase*. The coenzyme when produced in the pancreas, or after injection, appears to be distributed by the blood to the tissues, activating the lipases there. We concluded further that this activating property is due to organic and inorganic phosphates. Whether the islets of Langerhans are responsible for the formation of the coenzyme, or not, appears uncertain. The same uncertainty is seen in De Witt's experimental work.² My object in writing is to call the attention of workers to this aspect of the question, and more especially in relation to cancer. My experiments showed that tissue lipolysis is defective in cancer. I am convinced that increased tissue lipolysis is a factor in the defensive processes of the body, and this is particularly the case in cancer. Anything which increases this action in that disease should not be lost sight of.

I am, Sir, yours faithfully,

J. A. SHAW-MACKENZIE, M.D.Lond.

Physiological Laboratory, King's College, London,
June 8th, 1923.

DELAY IN GIVING DIPHTHERIA ANTITOXIN.

To the Editor of THE LANCET.

SIR.—Dr. E. E. Caiger's³ letter intimately concerns general practitioners as a body, and demands consideration by those who possess intimate knowledge of the conditions under which general practice is carried on, especially in an industrial area. Antitoxin is now supplied gratuitously by the medical officer of health, but only for individual cases—that is to say, it is not possible to obtain a supply to have ready to hand for immediate use, but one has to apply for a supply for the particular case for which it is wanted; this means delay in obtaining the serum. In my opinion, if a case is sufficiently suspicious to call for the use of antitoxin, it is far better to send it straight off to hospital to be under the observation which cannot be secured at home. The authorities are very smart in sending down the ambulance, and one can rely on getting the case into hospital within two hours of examining it.

I once discussed this view with the late Dr. H. E. Cuff, and he entirely agreed with me. If you depend on the early administration of antitoxin by the family doctor, you have several difficulties to contend with. The delay in obtaining it; the objection raised by some parents to its use (in hospital it can be given without asking for consent); the danger of losing touch with the patient, owing to not having a supply of antitoxin to hand, until the case has become advanced. Moreover, the risk of anaphylaxis in non-diphtheritic cases is not negligible, and after a dose of antitoxin the patient should be under observation.

¹ Rosenheim, O., and Shaw-Mackenzie, J. A., 1910 (I. and II.); Rosenheim, O. (III.), *Proc. Physiol. Soc., Journal Physiology* xl., pp. 8, 12, and 14. Shaw-Mackenzie, J. A., 1911 (IV.), *ibid.*, xlii., p. 11; 1913, *Internat. Congress Med. (Therap. Sect.)*; 1915, *Journal Physiology*, xlix., p. 216; 1919, *THE LANCET*, ii., p. 825; 1921, *Jour. Trop. Med. and Hyg.*, i., p. 161; 1922, *Med. Press and Circ.*, i., p. 287; 1922, *THE LANCET*, ii., p. 769.

² De Witt, L. M.: 1906, *Jour. Exp. Med.*, viii., p. 193.

³ *THE LANCET*, June 9th, p. 1189.

After 25 years' experience of practice in an industrial area, I am convinced that early removal is the soundest procedure. I always explain to the parents that the case is a doubtful one (when the signs and symptoms do not warrant a precise diagnosis); that, if it proves to be diphtheria, early removal will have given the child the best chance of recovery; that, if it does not prove to be diphtheria, the child will run no risk by being removed to hospital and will return home after a short detention. The majority of advanced cases that are sent to hospital are in an advanced stage when the doctor first sees them. That a few doctors do delay until diagnosis is assured is probable, and for this the M.A.B. itself is largely to blame, for they used to send a notice to practitioners, when a case proved not to be one of infectious disease, stating that it was not diphtheria or other notifiable disease. In my borough one of the borough councillors on the health committee used to keep a black list of doctors who had numerous cases notified to them in this way. It is hardly to be wondered at if this attitude made some practitioners unduly careful not to send a case in until they were sure of the diagnosis, and the idea thus propagated has not entirely died out.

I do not know of any doctor who entertains the idea set out in Dr. Caiger's last paragraph.

I am, Sir, yours faithfully,

HENRY J. CARDALE.

Cubitt Town, E., June 10th, 1923.

A STANDARD FOR LYSOL.

To the Editor of THE LANCET.

SIR.—We should like to bring to your notice the anomalous position regarding lysol which now obtains. This preparation was a 50 per cent. solution of cresylic acid in soap, and the product as originally sold under the proprietary name "Lysol" always contained a minimum of 50 per cent. free cresylic acid. Now, however, owing to the name having been thrown open generally, all kinds of preparations are placed upon the market which contain a far less proportion of cresylic acid. In fact, we know that a preparation is being sold to-day by unregistered druggists which actually contains less than 3 per cent. of cresylic acid.

The position is that there being no official standard for lysol, anyone to-day can make a preparation containing practically no cresylic acid whatsoever and can call it "Lysol," and thus the medical man as well as the public might easily be misled into thinking that they are buying a preparation of the original strength. The danger lies in the fact that the bactericidal power of the preparation resides almost solely in the cresylic acid content. Lysol is probably the most used antiseptic in midwifery, and if a preparation is used containing only 3 per cent. of cresols the patient may run a grave risk of septic conditions, whilst the practitioner is thinking that ample protection is provided by the antiseptic.

In the generality of products which have a common name the public are protected either by such preparations being standardised and made official in the Pharmacopœia, or by standards especially maintained under the Food and Drugs Acts. We have already brought the matter before the General Medical Council, who have undertaken to refer it to the Pharmacopœia Committee when a revision is next called for, but in the meantime the public are left unprotected. We should be glad to leave it to any pressure could be brought to bear in order that a standard might now be laid down for this important product.

I am, Sir, yours faithfully,

S. H. MARSHALL,
Director, Lysol, Ltd.

Raynes Park, London, S.W., May 29th, 1923.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH. *City of London.*

Dr. W. J. Howarth's report for 1922 gives the mid-year population of the City as 13,363. The birth-rate was 11.1, the death-rate 14.1. The death-rate from tubercle was 1.5, from cancer 1.6, and from respiratory diseases with influenza 3.0. There were no maternal deaths from childbirth and no deaths among illegitimate infants, while the mortality-rate for legitimate infants was 66. Two improvement schemes have been sanctioned: the Queen's Court, Minories area, involving the provision of dwellings on the site for 72 persons, and the Hutchinson-street area, providing for the rehousing of 250 persons on the site and 635 elsewhere. The occurrence of a case of anthrax in a neighbouring borough was associated with Chinese bristles and Russian horse-hair, and the bristles were apparently contaminated by the horse-hair. The Court of Common Council have urged the Ministry to give effect to the recommendations of the Smoke Abatement Committee, particularly those which empower the Ministry to act in default and to fix standards and those which lay on manufacturers the obligation to provide the best practicable means for smoke prevention and enable larger fines to be imposed than at present.

Mr. T. D. Young, the veterinary surgeon at the meat markets, reports on Australian frozen beef. Considerable loss is caused to the trade, both from the imperfection of the freezing methods and from infection with *Onchocerca gibsoni*, and Mr. Young recommends further research in Australia with a view to finding remedies. The meat passed through the central market amounted to 463,074 tons, which constitutes a "record." Supplies from South America increased by 12 per cent. and from Holland by 58 per cent. British feeders supplied 30 per cent. of the pork. Dr. Howarth comments on the large amount of diseased British meat, showing that the recommendations of the Departmental Committee on Meat Inspection are not receiving due attention. Much money is being saved by more scientific methods of dealing with pig carcasses affected by tuberculosis. Argentine lamb continues to improve in quality and to approach nearer to the New Zealand standard, but there is room for improvement in both New Zealand and Australian beef.

Dr. Howarth deals with the question of boric acid in cake, due to the use of boracised egg-yolk. The Bakery and Allied Traders' Association have undertaken to help to prevent boracised egg-yolk being used for this purpose. He hopes to present a report on standards for preservatives in the very near future. Rat repression continues to receive careful consideration and is rendered more difficult by the fact that accommodation in increasing amount is being provided for the consumption of food on the premises by employees.

Norwich.

Dr. H. Cooper Pattin states that the general features affecting the health of the community in 1922 which called for comment were: (a) influenza in epidemic form at the beginning, (b) scarlet fever at the end of the year; as there had been relative freedom from scarlet fever, in anything approaching an epidemic, for years, a considerable population at susceptible ages had grown up who fell ready victims to the epidemic; (c) throughout the year relative prevalence of unemployment among sections of the population, which reacted badly upon the general standard of nutrition and healthiness. The notifiable diseases were as follows:—

Cases notified.		Deaths.	Cases notified.		Deaths.
Diphtheria ..	177	12	Malaria ..	3	—
Scarlet fever ..	682	2	Erysipelas ..	54	3
Enteric fever ..	8	2	Encephalitis ..	5	3
Puerperal fever ..	6	4	lethargica ..	5	3
Pneumonia ..	95	46			

There were 191 notifications of tuberculous disease during the year—150 of the lungs, and 41 of other forms. There was a fractional majority of males affected; 37.7 per cent. were married, 58.6 single, 3.7 widows. Information obtained from 149 of the cases revealed evidence of family taint in 29.5 per cent. At the time of the first visit 46.3 per cent. occupied a separate bedroom, 10.7 per cent. a separate bed in a double-bedded room, and 43.0 per cent. shared a bed with another (presumptively non-tuberculous) person. The deaths from phthisis numbered 135, and from other tuberculous diseases 32. (In 1921 the corresponding figures were 147 and 26.) As usual, boot-workers contributed, next to housewives, most largely to the numbers, there being 25 boot-workers notified in 1922—three less than in 1921. 129 pulmonary cases were admitted to hospital, colony, or sanatorium during the year, and 30 non-pulmonary. The conjoint Stanninghall Colony and the Pavilion (for women) at the Isolation Hospital rendered good service. Dr. Pattin does not think that the provision of institutional treatment for cases past hope of recovery is likely to serve any useful purpose unless and until statutory power of compulsory segregation is conferred. As to maternity and child welfare work, at or from the maternity institution 323 confinements were attended (25 more than in 1921), 38 in the wards, and 285 outside; 99 of the mothers attended the ante-natal clinics. The infant welfare clinics did good work during the year; 951 new babies were brought and the total number of attendances was 8769. Inspection of 6900 children in the elementary schools revealed defects sufficiently serious to need medical treatment in 12.4 per cent. Among 580 scholars in the secondary schools 49, or 8.4 per cent., required medical treatment. The school dental officer finds defects in the teeth of 73 per cent. of those whom he inspects. The scarcity of houses persists. Only 183 houses of all types were erected during the year, 161 of these as part of the municipal housing scheme. This scarcity compels the health authorities to tolerate the continued occupation of numbers of undesirable habitations, prevents compulsory closure, and leads to overcrowding. A feature of much house property in the city is its worn-up character, which makes reparation unprofitable.

Cardiff Port Sanitary Authority.

Dr. Ralph M. F. Picken reports that some anxiety arose in October last when sailors from a ship arriving at Cardiff, who had disembarked before the vessel's arrival at Cardiff, introduced small-pox at Barry, at a time when it was prevalent in other parts of the country. None of the 205 rats examined showed evidence of plague, but the fact that Dr. J. J. Simpson found the flea which is known to convey plague on rats caught both on vessels and on shore shows that the conditions precedent to the transmission of plague exist in the port area. Dr. Simpson gives some interesting particulars. The species known as brown rats and black rats are often confused. All the rats sent to him were black rats. Colour is no guide. Some "brown" rats are black and most "black" rats are brown. Illustrations of the two species are given. The black rat is more elegant, has a sharp muzzle, weighs about 8 oz., has large translucent ears and a slender tail, often longer than its head and body. The brown rat is of clumsier build, has a blunt muzzle, weighs 14 oz. or more, has small hairy opaque ears and a stout tail, never as long as the head and body combined. Of the three species of flea obtained, the plague flea, *Xenopsylla cheopis*, was found on three rats from warehouses and five from ships. One of the five ships had a case of plague on board in May, 1922, from Rangoon to Thursday Island. On arrival at Sydney the ship was fumigated and 57 rats were found, some of which were plague-infected. At Barcelona the ship was again fumigated. Treatment for sailors suffering from venereal disease is provided at the Royal Hamadryad Seamen's Hospital. The attendances reached a maximum of 17,040 in 1919 and have exceeded 12,000 in each of the three subsequent years.

SCHOOL MEDICAL SERVICE.

Warrington.

OUT of 4519 children examined in the routine group, 839 had defects requiring treatment, and of these 536, or 63·8 per cent., were treated. Every school in the town is visited by a school nurse twice a week and minor ailments are dealt with on the spot. In this connexion 47,513 dressings were done in the schools and Dr. G. W. N. Joseph claims that 75,000 school attendances were saved in this way. Out of 1309 entrants examined 166 had attended a welfare centre. The increase in the number of verminous heads is attributed to the higher standard of cleanliness adopted by the nurses. Ringworm cases treated by means of X rays numbered 54 at a cost of £84 10s. After the treatment these children attend the clinic for three days a week, when the head is washed with ether soap and white precipitate ointment is applied until the child is fit to attend school, after which he wears a washable cap in school and is treated by the nurse on her two weekly visits to the school. The school dentist inspected 10,782 children, 74·5 per cent. of whom had dental defects. He examines an average of 70 children per school session and treats about 12 a session at the clinic. There are now three schools in Warrington with school baths. Few objections are raised by parents to the children having the weekly bath, and in nearly all instances such objections are based not on the fear of any detriment to the child, but on the fact that the child's underclothing may be defective or uncleanly. An inquiry was made into the relationship between home conditions and the mental and physical capacity of school-children. The total number of cases investigated was 366. Dr. Joseph has come to the conclusion that of the three factors—overcrowding, bad hygienic conditions, lack of parental care—overcrowding in itself is the least deleterious to the child's mental and physical condition, and lack of parental care, even unaccompanied by bad hygienic conditions, is the most pernicious.

Cambridge.

There are 23 elementary schools in Cambridge with an average attendance of nearly 7000. Just over 2000 children were medically examined at routine inspection, and of 181 referred cases 163 received treatment. There were no cases of skin disease or of uncleanness recorded at this inspection, and Dr. A. J. Laird considers that the constant and firm pressure exercised upon persistent offenders (police court proceedings were taken in 89 cases) has made them realise that it is wiser to keep their children clean than to pay fines in the police court. A substantial part of the nurses' time is taken up with this work, the number of nurses' inspections for this purpose being 16,884. The head teachers, too, are very hard on offenders, in some schools making them occupy seats apart from the other children. This is said to have a more deterrent effect than any measure yet tried. The annual report of Cambridge for 1907 recorded nits or pediculi in the heads of 84 per cent. of the girls. The percentage has been reduced to 16·1.

Durham.

Over 41,000 children were medically inspected, and of 28,298 routine cases 8566 were referred for treatment, 8169 being kept under observation. Of these, 770 were found to have skin disease, 4528 defective vision, 5138 disease of the nose and throat, 280 speech defect, 462 ear trouble, and 707 defective hearing. Towards the end of the year zinc ionization for otorrhoea was introduced. During the year 7403 children received treatment out of 15,590 referred cases. About one-half of the dental cases were left untreated owing mainly to the shortage of clinics and dental staff. One of the doctors remarks a general improvement in cleanliness among children of employed and unemployed alike. This she attributes to two factors besides the efforts of doctors, nurses, and teachers—the aesthetic effect of feeding centres and the fashion of bobbed hair. The amount of feeding is considerably less than for 1921, owing to the limitation of the grant given by the

Board of Education for this purpose. The number of malnutrition cases found at routine inspection in the elementary schools was 1636, and in the secondary schools 222 out of 4471 children examined. The medical officer of the Birtley school clinic remarks that among those attending for examination and advice the class in which no physical cause for the impairment of general health is discoverable has been more in evidence during the late autumn, a fact which, he says, is undoubtedly due to bad family circumstances. Often a clue is supplied by some extraneous detail, such as poor clothing or lack of boots. He also notes enormous increase in the amount of septic skin conditions, which show a marked tendency to recur after apparent cure; he has little doubt that this increased susceptibility to septic infection is another indication of lowered vitality, coupled, perhaps, with injudicious household economy in the matter of soap and water. Investigations by two school doctors into the causes of laziness and of backwardness in children are interesting. Dr. G. C. M. M'Gonigle asserts that probably 90 per cent. of laziness can be traced back to physical causes, that laziness is a protective state and merely a symptom of a fundamental cause such as deafness, adenoid growths, anæmia from toxic poisoning, lack of sleep, improper feeding, or thyroid deficiency. Dr. H. G. Donald lays particular emphasis on laxity of home discipline and domestic mismanagement as factors in producing the dull and backward child. The undisciplined child of 5 is backward at the start of school life, and in most cases the subnormality is of ante-school origin. As an actual cause of dullness intra-school influences probably do not count at all. The remedy suggested is the supervision of children up to school age. It is possible that Durham will consider it worth while to establish a nursery school for this important research work. Dr. Eustace Hill attributes the greater part of this well-written report to the deputy school medical officer, Dr. A. T. Paterson. The suggestion at the end for health talks to children should be useful to doctors and teachers alike.

Medical News.

UNIVERSITY OF OXFORD.—At recent examinations the following candidates were successful:—

DIPLOMA IN PUBLIC HEALTH.

Part I.—Walter H. Butcher, Weldon Champneys, and Manuel J. Saldanha.

Part II.—Weldon Champneys and Mary Phoebe Wilson.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following have been admitted (after examination) as Fellows of Faculty:—

Robert A. Anderson, M.B., Ch.B.; George Dalziel, M.C., M.B., Ch.B.; Leander L. Fyfe, M.B., Ch.B.; George W. Hill, M.D.; James H. Martin, M.D.; and Sundar Das Sondhi, M.B., B.S.

UNIVERSITY OF LONDON: UNIVERSITY COLLEGE.—The chairman, Lord Chelmsford, and members of the University College Committee, the Provost and members of the academic staff, will hold a reception at the College on July 7th. The new anatomy building and the extensions of the physiology and engineering departments will be open to inspection. Old students of the College who have not recently communicated their addresses, are invited to send them, stating year of entry and faculty, to the Secretary.

UNIVERSITY OF MANCHESTER.—At its meeting on June 11th Convocation elected the Earl of Crawford and Balcarres to the office of Chancellor of the University vacated by the resignation of Viscount Morley of Blackburn.

SOCIETY FOR CONSTRUCTIVE BIRTH CONTROL AND RACIAL PROGRESS.—At the last meeting of the session, to be held on June 20th, at 8 P.M., in the Essex Hall, Strand, Mr. John Lort-Williams, K.C., M.P., will lecture on Birth Control as it interests Me.

THE Minister of Health will make an informal inspection at 2.15 P.M. to-day (Saturday) of the new pathological laboratories at Hollymoor near Birmingham set up by the Joint Board of Research for Mental Diseases and the Birmingham Asylums Committee.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—The George Alexander Gibson memorial lecture will be delivered in the hall of the College, 9 Queen-street, Edinburgh, on June 27th and 28th at 5 P.M., by Dr. W. T. Ritchie. The subject will be the Response of the Heart in Health and Disease.

NORTHWICH HOSPITAL.—Sir John Brunner and his brother, Mr. Roscoe Brunner, have jointly endowed a Brunner bed in Victoria Infirmary, Northwich, in connexion with the celebration of Messrs. Mond, Brunner and Co.'s jubilee.

SOCIETY OF BIOMETRICIANS AND MATHEMATICAL STATISTICIANS.—Dr. T. H. C. Stevenson will give a paper on the Social Distribution of Causes of Death in England and Wales on June 25th at 8 P.M., in the Theatre of the Galton Laboratory, University College, Gower-street. Visitors will be welcomed.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A special course in Neurology will be given at the West End Hospital for Nervous Diseases from June 25th to July 20th. Demonstrations in the outpatient department will take place each day and lecture demonstrations specially dealing with the diagnosis and treatment of nervous disease will be given by members of the staff three times a week. The Fellowship programme for July will include a two weeks' refresher course at the Royal Northern Hospital in conjunction with the Central London Ophthalmic Hospital and the Royal Chest Hospital, from July 2nd to 14th and concurrently with this a fortnight's intensive course in cardiology will be given at the National Hospital for Diseases of the Heart. There will also be special courses on dermatology at the Hospital for Diseases of the Skin, Blackfriars, from July 16th to the 28th and on Diseases of Children at the Royal Waterloo Hospital from July 16th to August 4th. Further particulars can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

THE LATE DR. F. E. RAINSFORD.—Frederick Edward Rainsford, M.D. Dub., medical superintendent, Stewart Institution, who died at Palmerstown House, Palmerstown, on June 6th, spent the first part of his professional life at Fishponds Asylum, Bristol, where he was a senior member of the medical staff, and from where he was appointed in 1898 as medical superintendent to the Stewart Institution for Imbeciles and to the Hospital for Mental Diseases, Palmerston. He received his early education at Old Rathmines School. An all-round athlete, he played for the Lansdowne XV. and the Trinity cricket team in his earlier years, and later organised a famous cricket team at the Institution. He was deeply interested in his profession, and held the post of an examiner in medicine in the University of Dublin; during his tenure of office at Palmerstown he greatly enlarged and brought up to date the two large institutions under his care. He was of an energetic and cheerful disposition, being very popular with his patients and employees, and held in high esteem by his colleagues. The strain of the war years, when most of his staff was called up for service, coupled with the many agricultural difficulties he had to cope with in his administrative work, told on his health. Although warned by specialists to "go slow" he carried on till a break-down last year.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—Lord Howard de Walden, who presided at the annual meeting of governors on May 30th, referred to the serious financial position of the hospital. There was a debt of £20,000 and the hospital had had to deposit all its securities against the overdraft at the bank. As this was not sufficient the committee had been compelled to take steps to raise money on the security of the freehold of the hospital in the hope that their friends and the public generally would help them to pay off this mortgage and thus prevent any curtailment of the good work of the hospital. The numbers of patients seeking admission were greater than ever, and it would be disastrous if it became necessary to reduce the accommodation for patients and the facilities provided for the training of students, maternity nurses, and midwives, who came to the hospital from all parts of the country and our dominions. Last year 155 students and qualified practitioners attended a course of practical midwifery at the hospital, and practically every vacancy was filled for the next 18 months; while 172 women had been trained as maternity nurses and midwives. During the year 150 candidates took the Central Midwives Board examination and only six failed to pass, the percentage being 4, as compared with 23 of failures throughout Great Britain. The accommodation of the hospital was quite inadequate for the great demands made upon it, and it was impossible to carry out the proposed extensions and alterations until the debt was paid off. He made an earnest appeal for additional support.

ORDER OF ST. JOHN OF JERUSALEM IN ENGLAND.—The King has sanctioned the following promotions and appointments: Major Arthur Hammersley Johnston, M.R.C.S., Dr. George Herbert Rose Holden, and Dr. Harry George Walters, as Knights of Grace; and Captain James Anderson, M.D., and Major Cecil Henry Elmes, V.D., M.B., Esquires.

ROYAL MEDICAL BENEVOLENT FUND.—At the meeting of the committee held on June 5th 36 cases were considered and £510 5s. voted to 32 applicants. The following is a summary of some of the cases relieved:—

Daughter, aged 56, of M.D. St. And. who practised in Surrey and died in 1919. Through lameness and also not being physically strong applicant finds it difficult to obtain a permanent post. She is at present in a post, and has received £20 in the last six months. She also receives £26 from the R.U.K.B.A., and £28 from her brother towards rent, which, with partial board, amounts to £72 per annum. Voted £12 in 12 instalments.

Daughters, aged 54 and 57, of M.R.C.S. Eng. who practised in Kent and died in 1920. The father's estate was in the hands of a solicitor, who embezzled three parts of the money. The sole income of these ladies amounts to £40 per annum each, and the amount left of the estate, which is now cleared up, is £147 to each. Rent, 12s. per week each. Voted £12 in 12 instalments each.

Wife, age 60, of L.R.C.P. & S. who practised in Hull. Applicant's husband has been in an asylum for 24 years, and has received help from the Medical Sickness Assurance Society, but having reached the age-limit there is no further assistance from this source. Applicant asks for help to pay the life assurance premiums, which amount to £10 per annum. Voted £10.

An anonymous donation of £5 from a Bath subscriber was received for the benefit of a case mentioned in our last report. The amount has been duly forwarded and received with grateful thanks.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

RESEARCH DEFENCE SOCIETY.—The annual general meeting will be held at the house of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W. 1, on June 20th, at 3.30. The chair will be taken by Lord Lamington. A short lantern lecture will be given by Dr. C. W. Saleeby on Sunlight and Disease. The report of the committee records a great improvement in membership. During the past few months more than 450 new members have been gained. A number of lectures and debates have been held, and their results have been very satisfactory. These lectures and debates have been particularly useful in dealing with the mis-statements of the anti-vivisection societies. The work of teaching is to be extended. The collection of slides available for lantern lectures on such subjects as the work of Pasteur and Lister should be noted. The Dublin branch of the Society has decided that, in view of the separate government of Southern Ireland, there ought not to be any official connexion with the parent society. The Dublin branch is therefore dissolved, but the hon. secretary, Mr. J. W. Tullo, is forming a new association, so that the defence of research will not be interrupted. Captain Walter Elliott having had to resign his position as Hon. Parliamentary Secretary of the Society, Sir Sydney Russell-Wells has succeeded him. The hon. treasurer's report shows for 1922 an income of £806 and an expenditure of £948, indicating an excess of expenditure over income of £142. As the result of an appeal by Lord Knutsford, chairman of the committee, there has been a considerable increase in the subscriptions and donations, but these will not favourably affect the balance-sheet till the close of the present year.

SHEFFIELD HOSPITAL SERVICE.—At a recent meeting of the Grand Lodge of the Sheffield Equalised Independent Druids an address by Mr. S. R. Lamb (secretary of the Sheffield Joint Hospitals Council) was read. The whole tendency of modern hospital accommodation, Mr. Lamb wrote, was to unify the various departments. All hospital beds in a city should be under one roof, in order to secure for each individual patient the advice and help of all or any specialists in their own particular sections of modern medicine. Such a hospital should be equipped with the most modern apparatus, and a laboratory having its own pathological staff. Sunlight and clean air were two of the greatest factors in curative medicine, and arrangements should be made to provide a convalescent department to which patients could be sent. If for a year men would go without tobacco and cigarettes for one day in each week, they could provide the country with enough money to enable medical scientists to investigate the cause of the modern curses ravaging this country to-day. The claim of the manual workers was gradually receiving the attention it deserved, but there was a big section of the "middle classes" relatively as dependent upon the voluntary hospitals whose claims had not been so generously recognised. Dealing with the question

of a municipalised, or nationalised, system, Mr. Lamb believed there was a spirit and soul in the voluntary system which might be absent once hospitals were governed from the town hall or from Whitehall. Contributors and their families, representing 250,000 of the local population, were actively assisting in reconstructing Sheffield hospitals by offering money and service. Sheffield was almost the lowest in the list of industrial centres in regard to the number of voluntary hospital beds per 1000 of the population. There was still a debt of nearly £80,000, and until this was wiped out their efforts would be crippled. The aim was to have a large unified general hospital away out on the hill-sides. The Royal Infirmary site might some time be used as a public park, the Royal Hospital as a casualty hospital, and Jessop Hospital as a maternity hospital.

GUY'S HOSPITAL.—H.R.H. the Prince of Wales, as President of the hospital, will open the new anatomy, biology, and vaccine departments of the Medical School at 3 P.M. on Monday, July 2nd.

MEDICO-LEGAL SOCIETY.—A meeting of this society will be held at 11, Chandos-street, London, W., on June 19th, at 8.30 P.M., when Dr. A. S. Woodward will read a paper on *Some Attempts to Defraud Life Assurance Companies*, to be followed by a discussion.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—The foundation-stone of the Nurses' Home at the country branch of this hospital, Brockley Hill, Stanmore, will be laid by H.R.H. Prince Henry on Saturday afternoon, June 23rd. The formal opening of the new Hut will take place at the same time.

The Services.

ROYAL ARMY MEDICAL CORPS.

Maj. and Bt. Lt.-Col. C. G. Browne, from the half pay list, is restd. to the establt.

Maj. M. C. Beatty to be Lt.-Col., vice Lt.-Col. H. Herrick promoted.

Temp. Capt. A. G. McKenna relinquishes his commn. and retains the rank of Capt.

Col. R. J. Blackham, half pay list, late R.A.M.C., retires on ret. pay.

J. M. Jamie to be temp. Lt. whilst empld. as a Dental Surgeon.

ARMY RESERVE OF OFFICERS.

Col. T. B. Beach, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Maj. F. F. Burghard, having attained the age limit, is retired and is granted the rank of Col.

Capt. H. N. Crowe relinquishes his commn. and retains the rank of Capt.

Supernumerary for service with O.T.C.: Capt. G. A. Williamson to be Local Major whilst comdg. the Aberdeen University Contingent, O.T.C.

General Hospitals: Lt.-Col. G. R. Turner, having attained the age limit, is retired, and retains the rank of Lt.-Col.

The undermentioned officers relinquish their commns. and retain their rank except where otherwise stated: Lt.-Col. F. W. Ellis; Maj. W. S. V. Stock and A. Young; Capt. E. C. Bradford, C. F. Coombs (granted the rank of Maj.), C. C. Cuthbert, A. G. T. Fisher, A. A. R. Green, A. R. Short, and W. Whitelaw.

Sanitary Companies: Capt. A. F. MacBean relinquishes his commn. and retains the rank of Capt.

Capt. T. L. Fraser to be Div. Adjt., 51st (Highland) Div., T.A., vice Capt. C. Popham, transferred to 49th (West Riding) Div.

TERRITORIAL ARMY RESERVE.

Maj. (Bt. Lt.-Col.) C. Rundle, from 1st Western Gen. Hospl., T.F. Res., to be Lt.-Col.

Maj. A. M. Gossage, having attained the age limit, is retired, and retains the rank of Maj.

THE WAZIRISTAN OPERATIONS.

Among the names brought to notice for distinguished service during the operations in Waziristan, 1920-21, by His Excellency General Lord Rawlinson of Trent, are the following: Col. W. E. Hudleston (late R.A.M.C.) (Staff Command); Maj. H. Harding (A./Lt.-Col.); Capt. A. G. Biggam (A./Lt.-Col.); W. M. Cameron (T./Maj.); C. M. Ingoldby (A./Lt.-Col.); J. M. MacKenzie (A./Maj.); C. Popham (A./Maj.); M. P. Power (A./Maj.); T. H. Sarsfield, B. C. O. Sheridan, R. I. Sullivan, all of the R.A.M.C. Lt.-Col. C. Hudson (A./Col.), I.M.S.; Matron Miss E. O'Sullivan, R.R.C.; Capt. J. B. Vaidya (A./Maj.), I.M.S.; and Temp. Capt. G. D. D. Wijesekere, I.M.S.

Parliamentary Intelligence.

HOUSE OF LORDS.

TUESDAY, JUNE 12TH.

Mental Treatment Bill.

THE Mental Treatment Bill was considered on report and was ordered for third reading.

HOUSE OF COMMONS.

TUESDAY, JUNE 5TH.

Carbon Monoxide in Gas.

SIR WILFRID SUGDEN asked the President of the Board of Trade whether his attention had been drawn to the description in the press of a method of treating gas by a Mr. Tully whereby, so it was alleged, the percentage of carbon monoxide was very greatly reduced; and whether he had any information as to the practicability of producing such a gas upon a commercial scale.—SIR P. LLOYD-GREAME replied: The latest analysis which I have seen of gas produced by Tully plant at present in industrial use, which was published on May 16th in the *Gas Journal*, gives the carbon monoxide content as 37 per cent., but I observe that in a prospectus just issued, which my hon. friends have no doubt seen, it is stated that by means of a new converter the carbon monoxide content can be reduced to a negligible quantity. I am not in a position to express an authoritative opinion as to the practicability of producing town gas on a commercial scale by the new process. The matter is, however, being carefully watched by the Government departments concerned.

WEDNESDAY, JUNE 6TH.

Rockefeller School of Hygiene.

MR. RHYS DAVIES asked the Minister of Health to state the present position regarding the Rockefeller School of Hygiene; what was the estimated annual cost of its upkeep and from what source its income would be obtained; what were the names of the council of the governing body; and who was the director of the institute by whom these persons were chosen or, if they had not yet been appointed, by whom they would be chosen.—LORD E. PERCY replied: A formal agreement has been entered into between the Rockefeller Foundation, the Minister of Health, and London University, and the site for the school has been selected. The Government have accepted the liability for the maintenance expenses up to an amount not exceeding £25,000 a year, which, together with fees and any transferred endowment, is expected to be sufficient. The permanent governing body cannot be appointed pending the completion of the negotiations with the existing schools and other bodies concerned; and my right hon. friend has accordingly appointed a transitional executive committee including, besides himself and Lieut.-Colonel Fremantle, Lord Burnham, Sir Arthur Clarke, Sir Walter Fletcher, and Sir Harry Goschen, Sir George Newman, Sir Cooper Perry, and Sir Arthur Robinson. This committee will carry on the preliminary work until the permanent governing body can be established, and one of their first tasks will be the selection of the director.

DR. CHAPPLE asked the Minister of Health why, in view of the fact that the interests of women in national health would be largely involved, no women had been included among the appointments he had made to the transitional executive committee of the proposed school of hygiene; and whether he would add to its members at least two women.—LORD E. PERCY replied: My right hon. friend is unable to agree that the interests of women will suffer in any way from the fact that no women have been appointed to the transitional executive committee, and the duties entrusted to that committee do not appear to him to necessitate the appointment of women as such without regard to their other qualifications.

Maternity and Child Welfare in Hornsey.

Captain Viscount EDNAM asked the Minister of Health whether his attention had been drawn to the reply sent by the Hornsey borough council to the Ministry's letter, dated April 12th, in which it was stated that if the council kept within the amount which the Ministry recognised for grant in respect of child and maternity welfare it would be impossible to carry on the work efficiently; and whether, in view of their reply, he would reconsider his decision to reduce the estimate furnished by the council by £100.—LORD E. PERCY replied: My right hon. friend is aware of the report of the medical officer of health and of the letter from the Hornsey borough council referred to. The reduction of £100 was made in the absence of any explanation of the purposes for which the sum was required. The council have now applied for approval of an extension of their

ante-natal work. After consideration of the report of one of the medical officers of the Ministry, who has investigated the proposal, the Minister of Health is prepared to agree to an addition to the expenditure of the council for the purpose of ante-natal centres.

Panel Practitioners' Records.

Dr. WATTS asked the Minister of Health of what use the records kept by panel doctors are, either from a scientific or other point of view, and what was the cost to the insurance funds; and was he aware that the fact that these records had to be kept stopped many insured persons, especially when suffering from certain diseases, consulting their panel doctors, and so allowed these diseases to be much more serious owing to lack of proper treatment.—Lord E. PERCY replied: In reply to the first part of the question I would refer the hon. Member to the report of Sir Humphry Rolleston's Committee which was presented to Parliament. (Cmd. 836 of 1920.) The keeping of records is part of the terms of service of insurance practitioners, and is not separately paid for. Great care is taken to preserve their confidential character, and my right hon. friend has no evidence in support of the suggestion contained in the last part of the question.

Revision of Panel Practitioners' Conditions.

Mr. HURD asked the Minister of Health what had been the result of the revision of service of panel doctors under the National Health Insurance Acts which he recently announced; what change was to be made in the number of persons permitted to be on the doctors' panel lists; and what other changes were in view to meet recent allegations of the inefficiency of the system.—Lord E. PERCY replied: The first part of the question seems to indicate some misapprehension. The situation is that certain proposals for the revision of the terms of service of insurance practitioners based mainly on recommendations of the Insurance Consultative Council have been discussed with the Insurance Acts Committee of the British Medical Association, and that committee have themselves put forward certain suggestions. All these proposals will be discussed this week at a conference of representatives of panel committees throughout the country. Pending the result of the negotiations my right hon. friend can make no statement as to possible changes in the service.

Insured Persons and Dental Treatment.

Mr. SCRYMGEOUR asked the Minister of Health whether, as ill-health of the workers was, according to the view of welfare supervisors, considerably attributable to neglected teeth, the Minister of Labour would consider the proposal of extending the national health insurance benefit for dental treatment.—Lord E. PERCY replied: The payment of the whole or part of the cost of dental treatment is included amongst the additional benefits which an approved society is entitled to provide for its members out of a disposable surplus declared on the valuation of the society, and several societies, with a total membership of nearly 7,000,000 insured persons, already make such provision. My right hon. friend entirely agrees as to the value of this benefit in the interests of the health of the workers, and he hopes that under schemes arising out of the second valuation, which is about to take place, it will be made available for an even larger number of insured persons than at present. There are not, however, funds available for the inclusion of dental treatment amongst the ordinary benefits available for all insured persons.

The Metropolitan Asylums Board.

Mr. GILBERT asked the Minister of Health how many hospitals for epidemic diseases were maintained by the Metropolitan Asylums Board; what was the total number of patients they would accommodate, and how many beds were used during the last three years; what was the total expenditure of this body for the last three years; and what rate was paid by the London ratepayer for the cost of this Board.—Lord E. PERCY replied: Fifteen hospitals for infectious diseases (other than tuberculosis and venereal disease) are maintained by the Metropolitan Asylums Board, and the number of beds therein is 8779. The total number of patients treated during the years 1920, 1921, and 1922 were 40,705, 55,324, and 41,819 respectively. The total net expenditure of the Board during the years ended March 31st, 1920, March 31st, 1921, and March 31st, 1922, was £1,872,013, £2,748,872, and £2,565,233 respectively. A rate of 9½d. in the £ has been levied to meet the expenses of the Board during the current financial year. The hon. Member is no doubt aware that the provision and maintenance of hospitals for infectious diseases form only a part, though an important one, of the work of the Board.

British Empire Campaign against Cancer.

Mr. ALBERT BENNETT asked the Minister of Health whether his attention had been called to the British Empire campaign against cancer; and whether the Ministry is assisting the movement in any way in the provision of funds.

—Mr. NEVILLE CHAMBERLAIN replied: My attention has been directed to this campaign, but the Government is not assisting it by the provision of funds.

THURSDAY, JUNE 7TH.

Pensions for Tuberculosis.

Mr. HANNON asked the Minister of Pensions the number of applications for pensions in respect of tuberculosis which had been rejected in the last six months on the ground that the disease was not attributable to war service; and whether he could see his way to consider, in conjunction with the Minister of Health, the formulation of a scheme for assisting the very large number of unpensioned ex-Service men now suffering from tuberculosis.—Major TRYON replied: During the past six months, four years after the armistice, 1600 first claims to pension for tuberculosis have been rejected on the ground that the disability was neither due to nor aggravated by service and 1100 admitted. As regards the last part of the question, I would point out that my authority is limited to cases in which the disability is due to or aggravated by war service, and I am afraid, therefore, that I am not in a position to adopt the hon. Member's suggestion.

British Policy on Opium Question.

Mr. JAMES BUTLER asked the Secretary of State for the Home Department what was the nature of the proposals recently laid before the Opium Advisory Committee of the League of Nations by the British delegate.—Mr. R. McNEILL replied: The British representative on the Opium Advisory Committee of the League of Nations has not yet rendered any report upon the proposals which he has laid before that body.

Misleading Descriptions of Foodstuffs.

Mr. LAMB asked the Attorney General whether he proposed to institute proceedings against the party or parties responsible for the insertion in newspapers of advertisements containing misleading descriptions of foodstuffs.—Sir D. HOGG replied: If any case is brought to the attention of the Director of Public Prosecutions, in which under the existing law criminal proceedings could be instituted, the matter will be carefully considered by him. I have submitted to the Director the advertisement which my hon. friend was good enough to show me, but he advises me that it does not offend against the criminal law. The usual method of checking misleading descriptions of foodstuffs—whether advertisements or not—is by proceedings under the Sale of Food and Drugs Act, 1875, and the administration of this Act is almost invariably left to the local authority concerned.

Presumption of Disability.

Mr. FREDERICK ROBERTS asked the Minister of Pensions whether in the first annual report of the Minister of Pensions it was stated that in respect of tuberculosis it was agreed, following the French system, that the general presumption should be that the disease was in some way connected with the man's service, unless there was evidence to the contrary; whether the acceptance of presumption in cases of other disabilities due to war service was a matter of departmental regulation; and whether he would issue instructions that disabilities should be accepted as due to war service, unless the Ministry was able to prove the contrary.—Major TRYON replied: In the case of men invalided from service it is an express rule of my department that there is a prima facie presumption that the invaliding disability is due to or aggravated by the man's service. In the case of demobilised men, I have, in accordance with the advice of the highest independent medical authorities in the Kingdom, directed, in the case of certain diseases, of which the first overt symptoms may not appear for some time after the original causation of the disability, that even though such symptoms do not manifest themselves until a year (in the case of tuberculosis), or, in the case of certain other diseases, even two years after the man's discharge from service, the disease may, subject to proper diagnosis of the man's condition, be accepted as having originated in or existed during service, without further evidence on the point. I am medically advised, however, that these principles could not apply to any and every complaint from which an ex-Service man may suffer for the rest of his life, for the reasons which I gave in an answer on April 19th.

Cancer Research.

Sir JOHN LEIGH asked the Minister of Health what action had been taken during the last three years by his department to assist in cancer research; and what public funds had been expended for this purpose.—Mr. NEVILLE CHAMBERLAIN replied: I would refer to the answer given on this subject to the hon. Member for Lincoln on the 4th inst., to which I may add that the average amount devoted by the Medical Research Council to direct cancer research has been approximately £5000 during the last three years.

MONDAY, JUNE 11TH.

Advertisements on Medical Certificates.

Colonel Sir ARTHUR HOLBROOK asked the Minister of Health whether he was aware that advertisements were being printed on the back of medical certificates granted in connexion with the National Health Insurance; and whether he would take some action to relieve medical officers of acting as advertising agents for foodstuffs of which they may disapprove.—Lord E. PERCY replied: I would refer the hon. and gallant Member to the reply given on May 16th by Major Boyd-Carpenter to the right hon. Member for Derby (THE LANCET, May 26th, p. 1085).

Sir H. CRAIK: Has the hon. gentleman received from the medical practitioners a very strong protest against this, and the suggestion that the space used for advertising a certain sort of foodstuff might be applied with greater advantage?

Lord E. PERCY: Yes, we have received it.

Sir H. CRAIK: Has it been considered by the Ministry?

Lord E. PERCY: Yes, Sir.

Miners' Nystagmus.

Mr. MARDY JONES asked the Secretary for Mines whether his attention had been drawn to the dissent of Mr. Frederick Robson from the findings of the Medical Research Council, as expressed by him in a paper he read recently before the South Wales Institute of Engineers, as to the cause of miners' nystagmus, in which paper Mr. Robson gave evidence in support of his theory that miners' nystagmus was caused by the inhalation of noxious gases given off in the coal-face and not to the defective illumination of miners' lamps as given in the findings of the said Council; and, in view of the character of the evidence submitted, if he would institute further inquiry into the whole matter.—Lieut.-Colonel LANE-FOX replied: I have seen Mr. Robson's paper. The evidence in support of his theory has been considered carefully by the four doctors who constitute the Council referred to, and they are, unanimously, unable to accept that theory. I appreciate that Mr. Robson has devoted much time and care to the study of nystagmus, and every theory supported by evidence should be considered. This has been done by a body of whose authority there can be no doubt, and I see no reason for instituting any other inquiry than that which has been entrusted to the Council.

The Opium Evil in China.

Dr. CHAPPLE asked the Under Secretary of State for Foreign Affairs if he would ascertain from our representatives in China whether there was any evidence that the habit of opium-smoking was lessening in certain places and amongst certain peoples in proportion to the spread of the habit of cigarette-smoking; and whether he would take steps to test the feeling amongst Powers interested in China in favour of a tobacco monopoly that would serve the double purpose of placing Chinese finances on a stable footing and of counteracting the opium evil.—Mr. R. MCNEILL replied: I have never heard of any evidence in support of the theory advanced in the first part of the hon. Member's question, but His Majesty's Minister at Peking will be asked to furnish a report. In regard to the second part, there is already in existence at Peking a Wine and Tobacco Administration charged with the control of the taxation of tobacco and cigarettes throughout China. Apart from treaty and other obligations to the creation of monopolies, it may be found that better results can be reached by the strengthening of this administration than by the establishment of a new organisation.

International Congress against Alcoholism.

Lieut.-Colonel JAMES asked the Under Secretary of State for Foreign Affairs whether an invitation had been received from the Royal Danish Government for a delegation to attend an international congress against alcoholism to be held in Copenhagen in August; whether the invitation had been accepted; and whether it was proposed to defray the cost out of public moneys.—Mr. R. MCNEILL replied: The answer to the first and second parts of the question is in the affirmative. In reply to the third part of the question, it is not anticipated that any expense, chargeable on public funds, will be incurred.

TUESDAY, JUNE 12TH.

Opium Traffic Control.

Sir WALTER DE FRECE asked the Secretary of State for the Home Department what were the practical results of the meeting of the Advisory Committee on the Opium Traffic at Geneva, more especially in regard to the manufacture and distribution of drugs.—Mr. BRIDGEMAN replied: The main results of the meeting, I understand, were (1) that an agreement was reached with the delegation from the United States Government which will, it is hoped, have the effect of securing coöperation between that Government and the

States which are members of the League in the work of giving full effect to the International Convention of 1912; and (2) that the Advisory Committee decided to make recommendations for the adoption, by agreement between the powers interested, of measures for securing a more effective application of Part II. of the Convention which relates to the suppression of the use of opium for smoking, and a limitation of the manufacture of morphine, heroin, and cocaine, and of the production for export of the raw material from which the drugs are made.

Medical Benefit for Dependents.

Mr. TILLET asked the Minister of Health whether, seeing that there was no provision in the Health Insurance Act for medical benefit to mothers and wives of insured persons who were acting solely as housekeepers to their family, he would introduce legislation in order to provide such benefit.—Lord E. PERCY replied: As the provision of medical benefit for these dependents of insured persons would necessitate a substantial increase in the present weekly contributions, my right hon. friend does not think the present time opportune for the introduction of legislation to the effect suggested.

Medical Work in Native Reserves.

Sir ROBERT HAMILTON asked the Under Secretary of State for the Colonies the total estimated revenue for the current year, both direct and indirect, attributable to the African population of Kenya, and the total amount voted to be expended in the native reserves on medical, educational, and economic objects for the benefit of the African population.—Mr. ORMSBY-GORE replied: The total estimated revenue for the current year attributable to the African population of Kenya is approximately as follows: direct, £501,000; indirect, £219,000. The estimated expenditure during the year in the native reserves or for the benefit of the native population under the heads indicated cannot be stated, as the Colonial estimates do not, and indeed cannot, show what part of the total vote under each head is to be regarded as money expended for the benefit of one particular part of the population. Specific provision, however, is made for £21,321 for expenditure on native education, while for medical work in native reserves (apart from the provision for native hospitals and the personnel and material of the medical department, which is provided for the needs of the whole community) provision of £8074 is made. It is not possible to estimate the proportion of the Government's expenditure on economic services which is attributable to native purposes.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	..	..	£2	2	0
	Six Months	..	..	1	1	0
	Three Months	..	..	0	10	6
ABROAD	One Year	..	..	2	10	0
	Six Months	..	..	1	5	0
	Three Months	..	..	0	12	6

WESTMINSTER HOSPITAL: TEMPORARY CLOSING.—

Owing to the necessity of carrying out extensive repairs and alterations, Westminster Hospital will be closed for in-patients from July 2nd next for about six months. Out-patients will be treated at Westminster Hospital Medical School, 12, Caxton-street, but no casualty cases will be dealt with. Substantial improvements will be made in the wards and in the out-patient department, an additional operating theatre will be built, the X-ray, massage, and other departments will be brought up to date, and better accommodation for the nurses will be provided in a home outside the hospital. The cost is estimated at about £45,000, for which a special appeal will shortly be made.

JUBILEE OF WIGAN INFIRMARY: A TRIBUTE TO THE VOLUNTARY SYSTEM.—

On June 4th Lady Mary Lindsay, daughter of the Earl of Crawford, in the absence of her mother, unveiled a commemoration tablet in connexion with the new operating theatre which is in course of construction in the infirmary grounds. Lord Crawford, in opening the proceedings, said that even if there were no other reason, the remarkable financial status of this infirmary marked it out as one of the most notable institutions of the kind in Great Britain, and that financial status was based upon the system of weekly contributions, an excellent movement justified by its results. Last year the income from these weekly contributions amounted to the gigantic sum of £17,000. Mr. J. A. Parkinson, M.P., said it was only by the voluntary system that they got the best out of people, and it was only by voluntary effort they might hope to achieve perfection in hospital economy and progress. Hospitals of this kind were the institutions they should do their very best to help forward, and he had no hesitation whatever in appealing to the people present, and those who were absent, to help the infirmary in every possible way.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, W.

THURSDAY, June 21st.—4.30 P.M., Dr. F. F. Blackman: The Croonian Lecture: Plant Respiration as a Catalytic Process.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, June 19th.

SPECIAL GENERAL MEETING OF FELLOWS: at 5 P.M.

Thursday, June 21st.

DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)

Demonstration:

Sir Archdall Reid: A New Method of Treating Skin Diseases.

Cases:

The following will be shown: Dr. H. W. Barber: Scleroderma associated with Vitiligo. Dr. S. Ernest Dore: (1) Neurofibromatosis (two cases); (2) Parakeratosis Variegata.

Other cases will be shown.

Friday and Saturday, June 22nd and 23rd.

STUDY OF DISEASE IN CHILDREN: Provincial meeting at Bristol.

Friday, June 22nd.

2.30 P.M.—Meeting at the Bristol Children's Hospital.

4 P.M.—Meeting at Bristol University, Department of Pathology.

7.30 P.M.—Dinner at Hort's Restaurant, Mr. F. Richardson Cross in the chair.

Saturday, June 23rd.

9.20 A.M.—Visit to Mr. Vesey's Farm, Wincanton. (For details see special circular.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W. 1.

THURSDAY, June 21st.—7.45 P.M. to 8.15 P.M., Annual General Meeting. Dr. L. F. Hirst: Microscope Specimens. Colonel C. Lane will show an ordinary centrifuge with buckets adapted for direct centrifugal flotation for use in the diagnosis of ankylostome infestation. The Chalmers Memorial Medal and the Manson Medal will be awarded, and Dr. Hirst will read a paper on the Spread of Plague in the East Indies.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.

FRIDAY, June 22nd.—5.30 P.M., Sir S. Russell-Wells: Circulatory Differences between Mitral Stenosis and Aortic Regurgitation.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, June 18th.—12 noon, Mr. Simmonds: Applied Anatomy. 2.30 P.M., Dr. Saunders: Medical Wards. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Dr. Drummond Robinson: Gynaecological Operations. 11 A.M., Mr. McDougall: Electrical Dept. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.

WEDNESDAY.—11 A.M., Mr. Simson: Gynaecological Demonstration. 2 P.M., Dr. Burnford: Medical Wards. 3 P.M., Dr. Pernct: Skin Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 2 P.M., Mr. Bishop Harman: Eye Dept. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Dept. 2 P.M., Mr. Banks-Davis: Nose, Throat and Ear. 3 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Nose, Throat and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

FRIDAY, June 22nd.—4.30 P.M., Mr. V. Z. Cope: Demonstration of Surgical Cases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham.

Lectures at 4.30 P.M.

MONDAY, June 18th.—Dr. A. J. Whiting: The Polygraphic Study of Heart Disease.

TUESDAY.—Mr. J. Bright Banister: Heart Disease in Pregnancy.

WEDNESDAY.—Dr. J. Browning Alexander: The Scope of Rectal Alimentation in Modern Treatment.

THURSDAY.—Mr. H. W. Carson: Pelvic Peritonitis.

FRIDAY.—Mr. E. Gillespie: Hæmaturia.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, June 18th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Clinical Lecture: Dr. Aldren Turner.

TUESDAY, June 19th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Tumours causing Compression Paraplegia: Mr. Armour.

THURSDAY, June 21st.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Encephalitis: Dr. Grainger Stewart.

FRIDAY, June 22nd.—2 P.M., Out-Patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Labyrinthine Tests: Mr. Scott.

COURSE OF LECTURES ON NEURO-PATHOLOGY.

MONDAY, June 18th.—12 noon, Syphilis of the Nervous System: Dr. J. Godwin Greenfield.

A COURSE OF 12 LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS AND FRIDAYS if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the whole Course is £12 12s., including Anatomy and Physiology, but these Lectures may be taken separately for a fee of £4 4s. The fee for the Course without Anatomy and Physiology Lectures is £10 10s. Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

WEDNESDAY, June 20th.—4.15 P.M., Dr. W. M. Feldman: The Physiology of the New Born.

FRIDAY.—4.15 P.M., Mr. G. E. Neligan: Hydronephrosis.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, June 19th.—5 P.M., Clinical Meeting. 6.30 P.M., Fellows' Monthly Dinner at Cavour Restaurant, Leicester-square.

ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE, West Smithfield, E.C.

TUESDAY, June 19th.—5 P.M., Dr. Andrew Balfour: Tropical Hygiene (3).

THURSDAY.—5 P.M., Tropical Hygiene (4).

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, June 21st.—4 P.M., Mr. Addison: Cleft Palate.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

TUESDAY, June 19th.—8.45 P.M., Dr. B. Shires: X Ray Findings in Pathological Conditions of the Bone.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, June 21st.—5 P.M., Dr. J. B. Banister: Ante-natal Examinations.

SALFORD ROYAL HOSPITAL, MANCHESTER.

TUESDAY, June 19th.—6 P.M., Mr. Robert Ollerenshaw: Diagnosis and Treatment of Injuries in the Region of the Elbow-joint in Children.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

MONDAY, June 18th.—At Hereford, Mr. H. Chitty: Infantile Paralysis; Etiology; Stages; Prevention of Deformities.

Appointments.

GREER, W. N., M.B., Ch.B. Edin., has been appointed Third Assistant Medical Officer, Leeds Township Infirmary.

HINDS, F. W., M.B., B.Ch. Belfast, House Surgeon, Whitehaven and West Cumberland Infirmary.

Jessop Hospital for Women, Sheffield: COCKER, DORA, M.B., Ch.B. Sheff., and PINDAR, DORIS, M.B., Ch.B. Sheff., Assistant House Surgeons.

Certifying Surgeons under the Factory and Workshop Acts: DOYLE, J. L., M.B., B.Ch.N.U.I. (Abercraive); PEEL, H. G., L.S.A. (Sherburn, East Riding).

Medical Referees under the Workmen's Compensation Act: CAMPBELL, D. B., M.B., C.M. Glasg. (Kilmarnock District and the Isle of Arran); MCINNIS, A., L.R.C.P. & S. Edin. (Dumbarton District).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Jun. Asst. P. £250 to £350.

Birmingham and Midland Eye Hospital.—H.S. £120.

Blackburn County Borough.—Asst. M.O.H., &c. £600.

Bradford Municipal General Hospital, St. Luke's.—H.P. and H.S.

Each £200.

Brighouse Borough, &c.—M.O. and School M.O., &c. £750.
 Cairo, Kitchener Hospital for Women.—Female Res. M.O. £E.400.
 Cancer Hospital, Fulham-road, S.W.—H.S. £100.
 Cardiff Royal Infirmary.—Cas. Surg. O. £100.
 Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.
 Charing Cross Hospital Medical School, W.C.—Pathological Chemist. £400.
 Chesterfield and North Derbyshire Royal Hospital.—Cas. O. and Orthopaedic H.S. £170.
 Colchester, Essex County Hospital.—Hon. Pathologist.
 Durham County Council Maternity and Child Welfare.—Asst. Welfare M.O. £600.
 East London Hospital for Children and Dispensary for Women, Shadwell, E.—Afternoon Cas. O. £120.
 East-street Welfare Centre, 153a, East-street, Waltham, S.E.—Hon. Clin. Assts. Hon. P. for Infants.
 Elizabeth Garrett Anderson Hospital, 144, Euston-road.—Jun. Asst. Pathologist. £100.
 Grimsby and District Hospital.—Sen. H.S. and Jun. H.S. £175 and £125 respectively.
 Grosvenor Hospital for Women, Vincent-square, S.W.—Hon. Reg. India, Countess of Dufferin's Fund.—Two Medical Women. Rs.550 per mensem.
 Lancashire County Mental Hospital, Winwick, Warrington.—Locum Tenens. 7 guineas weekly.
 Leicester City.—Maternity and Child Welfare M.O. £500.
 Liverpool Royal Children's Hospital.—Res. M.O. £150.
 Manchester Children's Hospital.—Asst. S. £50.
 Manchester Northern Hospital for Women and Children.—H.S. £200.
 Manchester Royal Infirmary.—Asst. Surg. O. £35.
 Margate, Royal Sea Bathing Hospital.—Res. S. £200.
 Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—Senior Clin. Asst.
 Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon. Asst. in Electric Dept.
 North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O. £500.
 Nottingham County Sanatorium.—Asst. Res. M.O. £375.
 Oldham Royal Infirmary.—H.S.'s. Each £200.
 Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Two Asst. Res. M.O.'s. £80.
 Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. Cas. H.S. £100.
 Reading, Royal Berkshire Hospital.—H.P. and H.S. Each £200. Also Hon. S. to Ophth. Dept.
 Royal College of Surgeons of England.—Examiner in Dental Surgery.
 Royal London Ophthalmic Hospital, City-road, E.C.—Three Refraction Assts. Each £100.
 Sedburgh School, Yorkshire.—M.O.
 Shanghai Municipal Council, Public Health Dept.—Radiologist. Taels 700 per mensem.
 Sheffield, South Yorkshire Asylum.—M.O. £400.
 Shrewsbury, Royal Salop Infirmary.—H.P. £160.
 South Shields, Ingham Infirmary.—Jun. H.S. £150.
 Swansea General and Eye Hospital.—H.S. £200.
 University College Hospital, Gower-street, W.C.—Surg. Reg. £250. Hon. M.O. in Ear, Nose, and Throat Dept.
 Victoria Hospital for Children, Tile-street, Chelsea, S.W.—H.P. £100.
 West London Hospital, Hammersmith-road, W.—H.P., H.S., and Aural H.S. Each £100. Also Asst. Anesth. and Hon. Med. Radiologist.
 Wolverhampton and Staffordshire General Hospital.—Res. Surg. O. £250.
 The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Egham, Surrey; Rawtenstall, Lancs; Polmont, Stirlingshire.

Births, Marriages, and Deaths.

BIRTHS.

HORGAN.—On June 4th, at Lisbon, the wife of David St. Helier Horgan, M.B., D.O. Oxf., of a daughter.
 TINDALL.—On June 5th, the wife of Dr. R. Tindall, M.C., Chatwin House, Hurworth-on-Tees, Darlington, of a son.

MARRIAGES.

BOOTH—SYMONS.—On June 5th, at St. Mary Magdalene's Church, Bradford, Maurice Dalby Booth, A.C.A., to Mary Irene Symons, L.R.C.P., M.R.C.S.
 GRIFFITH—TRAFFORD.—On June 5th, at St. Nicolas' Church, Guildford, Edward Fyfe Griffith, M.R.C.S., L.R.C.P., to Mary Leigh, younger daughter of Mr. and Mrs. Cyril Trafford, of Withnoe, Guildford.
 McLUSKIE—DAY.—On June 7th, at St. Mary Abbots, Kensington, Peter McLuskie, M.B., to Dorothy Adelaide, elder daughter of Mr. and Mrs. H. Cooper Day, Holland Villas-road, Kensington, W.

DEATHS.

SANDISON.—On June 8th, at Maidenhead, the result of a motor accident, Joseph Hamilton Mundell Sandison, M.D., of The Cottage, Burton-on-the-Water, Gloucestershire.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

PUBLIC HEALTH IN COLOMBO.*

THE sanitary condition of Colombo was seriously affected during 1921 by the very deficient rainfall, which amounted to only 53.56 inches, compared with the annual average (14 years) of 78.91 inches.¹ This extreme deficiency could not but have a serious effect on the sanitary condition of the town, a great part of which is low-lying and flat. The gradients of the drains are very low, and the normal rainfall is necessary for their proper flushing. Moreover, enormous numbers of mosquitoes breed in the catchpits and gullies, canals become stagnant and foul, and swamps dry up, leaving mosquito-breeding pools. The population at the census in March was found to be 244,163, showing an intercensal increase of only 11 per cent., as compared with 33 per cent. during the previous intercensal period. Colombo depends to a large extent on the influx of immigrants for its increase in population; these formed 81 per cent. of the inhabitants at the 1911 census; the diminution in the usual increase was apparently due chiefly to the economic depression which resulted from (a) the war, (b) failure of the imported rice supplies, and (c) slump in the rubber trade. Dr. Marshall Philip, medical officer of health, who presents this report, considers, however, that "a return of the economic conditions to normal will be accompanied by an influx of immigrants, and a consequent increase of population, which in turn will cause the death-rates to appear fallaciously high."

Birth-rate and Death-rate.

Of the total inhabitants of the town, 114,600 were Sinhalese, 54,153 Tamils, 39,692 Moors, 14,863 Burghers, and 2836 Europeans. The density of population in the 11 wards varied from 11.3 per acre in Fort Ward and 12.9 in Wellawatta, to 94.8 in San Sebastian and 118.6 in St. Paul's. The birth-rate, 35.7 per 1000, showed a remarkable increase on the average for 1911-20, which was 24.7; this is attributed to "a marked influx of young adult population, which in turn no doubt resulted from an improvement in the economic conditions." The increase was most obvious in the case of the Sinhalese and Malays, for whom the ratios were 46.9 and 51.1, as compared with 30.5 and 39.3 in 1911-20. In the several wards of the town the ratios varied from 1.5 in Fort Ward and 4.2 in Pettah to 28.4 in Maradana and 30.4 in Kotahena; 2614 births in hospital, not allocated to any ward, bring up the average for the whole of Colombo to 35.7 per 1000. The total deaths numbered 8169, giving a crude death-rate of 33.5, compared with 29.1 in 1920 and 30.0 for the decennium; deducting 1130 deaths in hospital of non-residents, the corrected ratio becomes 28.8, practically the same as that of the preceding year (29.0). In the various wards the crude ratio ranged from 10.4 in Pettah and 11.9 in Fort, to 28.1 in St. Paul's and 30.6 in New Bazar; but on applying the correction for deaths in hospital Fort Ward has the lowest ratio (13.4), and New Bazar the highest (37.7). The "expectation of life" in the last-named ward is therefore little more than one-third of that for the dwellers in the Fort. It is obvious that climatic conditions have little to do with this enormous difference, which is due chiefly to the presence (or absence) of sanitation. With regard to racial variations, and after applying the correction for non-residents, the Sinhalese mortality was 29.0, that for Tamils 27.3, for Moors 30.6, and for Europeans 11.4 per 1000.

Infantile Mortality.—Infectious Diseases.

The infantile mortality (240 per 1000 births) showed a slight improvement on that for the decennium, 1911-20, which was 252, though somewhat higher than in the previous year (233); in Wellawatta ward it was only 192, while in St. Paul's the ratio was 457, and in Pettah actually 500. No climatic considerations can sufficiently account for such an enormous difference. Among the various races that make up the population, Sinhalese (forming the majority) had a ratio of 194, Tamils 386, Burghers 164, and Europeans 60 per 1000 births; the most frequent causes of death were convulsions (69), and atrophy and debility (67 per 1000).

As to infectious diseases generally the report may be considered to be most satisfactory on the whole. There was not a single case of cholera, or of scarlet fever, or of typhus; and only 15 of small-pox, three of these being Port cases, not arising in the town. Of the notifiable infections, numbering in all 3071 cases in Colombo itself, phthisis with 1367 cases was by far the most prevalent, chicken-pox coming next with 711, and enteric fever third with 398 cases. Pneumonia caused 950 deaths (3.89 per 1000), Malays (4.93)

* Government Press, Colombo. 1922.

¹ Mr. Blanford, in his "Climate and Meteorology of India and Ceylon," gives 57 inches, in 1874, as the least fall registered during 17 years' observations.

and Sinhalese (4.34) suffering most; for Europeans the mortality was only 0.97. From phthisis the death-rate was 3.02, Malays (4.42), and Sinhalese (3.68) again being most affected. Influenza caused only 191 deaths (0.78 per 1000), the deadly pneumonic type being conspicuously absent. Diarrhoea, enteritis, and dysentery combined caused a death-rate of 3.41, ranging from 1.29 in Europeans to 5.10 in Malays. There were 572 notifications of enteric fever, 219 resulting in death; in the previous year the cases and deaths had numbered 879 and 338; the improvement has been most satisfactory. The case-incidence for Colombo as a whole and for all races was 2.34, and the death ratio 0.90 per 1000; for Sinhalese these ratios were 3.34 and 1.26 respectively; for Burghers, 4.12 and 1.23; for Europeans, 4.86 and 1.30; while for Tamils they were only 0.84 and 0.35, and for Moors 0.88 and 0.50. In the different wards the case-rate varied from 0.26 in Pettah (a small ward facing the harbour) to 2.03 in Maradana, where "continued fever" (1.13 per 1000) was also prevalent.

Malaria and Plague.

Except for a localised outbreak in 1903-04 Colombo has hitherto been practically free from indigenous malaria, and until lately a few specimens of *Anopheles fuliginosus* had been the only malaria carriers found. During years of normal rainfall the low-lying land around the town is covered with water, abounding in fish, which prey upon the mosquito. When the floods subside, or do not occur (as was the case in 1921), the water evaporates, leaving shallow pools where mosquitoes flourish. In this connexion Dr. Philip quotes a remark by Dr. Bentley, Sanitary Commissioner of Bengal, to the effect that the shutting out of the periodical floods in a certain area of that province, by building a railway embankment, had resulted in a great increase of malaria, which would require a large expenditure to put it right. Any scheme for flood prevention should therefore "make provision for reclamation, including the prompt and thorough filling up or draining of all pools which may form, and for the periodical flushing of all canals." Dr. Philip also points out the necessity for immediate legislation to prevent mosquito breeding in Colombo itself; this has been repeatedly sought for, but has been long deferred.

There were 184 cases of plague in 1921, of which 170 were fatal, giving a death-rate of 0.70 per 1000, and a case-mortality of 92.4 per cent.; no cases occurred amongst Europeans; among Sinhalese the death-rate was 0.46, among Tamils 0.97, and for Moors 1.25 per 1000. The chief centre of infection was in the Sea Street, Pettah area, "where the disease must now be regarded as endemic." There is little danger of bubonic plague being spread by fleas from man to man, the number of bacilli in the blood being generally insufficient to cause flea-infection. "It has become a common saying in India that the safest place in a plague epidemic is the plague hospital." Septicæmic cases, on the other hand, should be carefully isolated in quarters free from any blood-sucking insect. For rat destruction "the three grains barium carbonate rice-flour bait has been found to be better than all others." There were only 15 cases and four deaths from small-pox, and three of these cases were imported. Infant vaccination has unfortunately fallen off, the deficit amounting to 2562 out of the 8724 births registered; in Maradana ward the births numbered 1634, and the primary vaccinations only 651. A mosquito-proof gully, designed by Mr. Cox, the city sanitary engineer, has been found to be entirely successful; it was introduced in 233 street gullies; of these 70 per cent. were found to be quite free from mosquito larvæ, while in the remaining 30 per cent. structural defects were found, or blocking by rubbish, which prevented the proper action of the arrangement.

Food Inspection and Welfare Work.

In regard to the inspection of food, it is stated that Colombo is much behind the times, and that at least one inspector, properly trained for the purpose, is required. The milk-supply has been unsatisfactory, but special attention has been directed to the matter during the year, and a decided improvement effected; of 897 samples examined 24.5 per cent. were found to be adulterated, as compared with 37 per cent. of 563 samples in 1920. Maternity and child welfare work has been much extended in recent years. The number of confinements attended by municipal midwives has risen from 396 in 1906 to 743 in 1921; but the number of children born and attended (749) is still only 1 in 11½ of the total births. There are 144 schools, public and private, with 24,408 pupils (of whom 16,040 are boys); it does not appear that inspection of the children is carried out, and the condition of many of the schools is said to leave much to be desired in lighting, ventilation, and latrine and washing accommodation.

Research Work.

Dr. L. F. Hirst, municipal bacteriologist, reports that shaving-brushes imported from Japan were found to be

heavily infected with virulent anthrax bacilli; also that 409 of 503 goats examined died of anthrax at the slaughterhouse during the year; but it is not stated how the animals became infected. Of 33,090 rats and other rodents examined for plague, 0.19 per cent. were found to be infected. An important research has been conducted on the cause and prevention of loss of carrying power in the Colombo water mains. It was found that the incrustation took place much more rapidly before than after passage through the Jewell mechanical filters; thus showing that "their utility depends quite as much, if not more, on the oxidation of organic matter and the removal of the precipitated ferric hydrate, as on the straining off of micro-organisms." Dr. Hirst notes the change in type of plague in rats, as well as in man, since 1914; "the change from the septicæmic to the bubonic type seems to be associated with a lowered virulence of the infecting organisms, and a lessened susceptibility of the Colombo rats to plague infection." *Xenopsylla cheopis* is the transmitting flea, not *X. astia*. Dr. Hirst considers that *Pulex hominis* is also a plague carrier, and that its importance has been under-rated.

This most interesting report is accompanied by excellent plans of Colombo and its neighbourhood, showing relative severity of disease incidence, and is further illustrated by some very good photographs.

THE HEALTH OF THE EUROPEAN COMMUNITY IN ASSAM.

THE printed proceedings of the Assam Branch of the British Medical Association at their annual meeting, held at Hallong in January, include an article by Dr. Charles E. P. Forsyth, President of the Branch, on conditions affecting the health of the European community in Assam. Dr. Forsyth describes the duties of tea-garden medical officers as of two main kinds—first, the charge of the labour and Indian establishments on the estates, and second, the care of the European managers and assistants with their families. Prior to the engagement of the young assistant for work in Assam, expert medical examination at home is essential; tuberculosis, any pulmonary or heart affection, and rheumatism "form an absolute bar" to employment in the East. Lately disabilities resulting from wounds have had to be considered, and there have been unfortunate occurrences relating to the overlooking of minor psychoses. Physically the man desiring to work in Assam must be of sound general health, able to stand exposure to adverse climatic influences (excessive heat, excessive rain, &c.), and "of a cheerful optimistic temperament." He may be called upon to endure a marked monotony of life; but an intelligent interest in his work, a reasonable aptitude for games or shikar, and a taste for books will keep him physically fit and mentally alert. Home leave, Dr. Forsyth considers, should be granted every three years, being an essential for the maintenance of health and quality of work.

He is of opinion that companies should not engage married men as assistants, or permit marriage until the completion of a first agreement of five years. Women withstand life in the tropics or sub-tropics much less easily than men, and although the fitness of a wife is not a matter admitting of rules, selection may be exercised with advantage in the choice of nurses and governesses. The strain of life for the woman falls chiefly on the nervous system, no greater prevalence of gynaecological affections occurring in Assam as compared with other places; generally speaking, the more work a woman does, the better her health will be—fortified, of course, by periods spent in the hills under better climatic conditions. Children suffer particularly, however; after the sixth or seventh years of age the risk of physical deterioration and mental detriment is definite. Infants do well in Assam up to 3 years, even without removal to the hills.

The essential points in selecting a residential bungalow are free ventilation with a through draught in every room, plenty of light without glare, a thatched roof to promote equable temperature, and partial mosquito-proofing. Full mosquito-proofing results in stagnation of air and in a false sense of security. Electric light and fans are valuable. Little can be said about food; a certain monotony may be unavoidable, but light, simple, and nutritious diet is advisable. Alcohol "other than a whisky and soda at sundown or with the evening meal" is under ordinary conditions to be avoided. Clothing should be absorbent and such as to ward off chill; Dr. Forsyth believes wool to be unnecessary and undesirable, as favouring the onset of prickly heat. Cold baths are to be avoided; the daily bath should be warm or tepid. Exercise should never be pushed to the verge of exhaustion. The article closes with an observation on malaria. Five grains of quinine given daily under all ordinary circumstances constitute, in Dr. Forsyth's opinion, the optimum prophylactic dose, and he has never known blackwater fever to develop in a person taking this dose regularly and conscientiously.

HEALTH CONDITIONS IN KENYA COLONY AND PROTECTORATE (LATE EAST AFRICA PROTECTORATE).

THE population on Dec. 31st, 1921, was estimated as comprising 9792 Europeans (4801 adult males, 2829 adult females, and 2162 children), 22,504 Indians, 2430 Goans, 9279 Arabs, 675 of miscellaneous races, and 2,348,788 natives. From the medical section of the annual report we quote the following: "Thirteen new appointments of medical officers during 1921 completed the sanctioned staff, and in consequence medical work in the native reserves has been largely increased, and the effect in combating infectious disease as it has occurred has been striking. Public health has been satisfactory, and the close of the year found the whole colony free from any epidemic disease. Plague, which was so prevalent in North Kavirondo in 1920, completely died out in the latter half of 1921. Smaller outbreaks in Kikuyu, South Kavirondo, and Nairobi were promptly dealt with so that the disease did not spread. A systematic campaign of rat destruction has been inaugurated in Kavirondo, which, apart from the consideration of the prevention of disease, will, if sustained, have an enormous effect in the saving of food for human consumption. Smallpox was reported early in 1921 on the upper reaches of the Tana river, and it is estimated that 200 natives died of the disease, but the epidemic was over by April, and there was no further outbreak during the year. Kala-azar was definitely proved in two cases, one a European and the other a native; both were infected in the Northern Frontier District, and both ended fatally; this is the first time this disease has been identified in the country. A European child suffering from pseudo-diphtheria was found to be infected by *Monilia tropicalis* (Castellani), the first time this fungus has been identified here. The various hospitals have been improved with a view to an increase in efficiency with economy. Special attention has been paid to the treatment of venereal disease. Indian candidates for the position of assistant and subassistant surgeons have not been forthcoming. This would be of less importance if facilities existed for the training of Africans for these posts; if possible, an effort will be made in this direction. It is also suggested that, in the place of Government medical officers, district surgeoncies should be established in such centres of European settlement as Nakuru and Eldoret; in these districts whole-time fully-salaried medical officers are at present largely occupied in doing non-Government work, and unfortunately so far the prospects for private practitioners have not proved to be sufficiently attractive. In the Native Reserves territory two permanent buildings at Kisii and Machakos have been completed. Two new centres have been opened at Chuka and Narok. Within two months the daily average number of in-patients was over 100, consisting almost entirely of cases of yaws. At seven out-dispensaries in the Central Kavirondo district, with Kisumu as headquarters, over 3000 patients were treated during the first three months of their existence. At Fort Hall, outside the township, a yaws camp, with accommodation for 100 patients, has been started. In Central Kavirondo an investigation is proceeding into birth-rate and infant mortality problems; the information gained will act as a guide to measures to be taken to prevent the present very large waste of human life."

THE LEBANON MENTAL HOSPITAL.

THE annual general meeting of the Lebanon Mental Hospital, Asfuriyeh, near Beyrout, Syria, will be held at the rooms of the Medical Society of London, 11, Chandos-street, London, W.1, on June 19th, at 3.30 P.M., Dr. E. W. G. Masterman in the chair. Dr. H. Watson Smith, director of the hospital, is now at home on furlough, and will be present to give information. Many improvements have recently been carried out at the hospital, among them the installation of electric light. Lavatories, bathrooms, and washhand basins are in excellent condition, and the stock of patients' clothing is satisfactory. A greatly improved set of attendants and nurses has been obtained, and the service and management are now excellent. Results with patients are described as highly satisfactory: the director holds a weekly class in psychiatry for students from the American University, Beyrout. The laboratory is now completely equipped, and the pharmacy is a great convenience, being placed in the centre of the hospital pavilions. It is supplemented by two rooms, one on the male side and another on the female side, where surgical dressing, examinations, and various forms of treatment are conducted. As regards water-supply, a recently installed pump worked without a single hitch during the whole of the past summer, and the hospital was never without water, although economy in its use is still very necessary, and cultivation and garden work have to stand aside.

TRAVELLING FACILITIES FOR BRITISH STUDENTS IN EUROPE.

IN these days British undergraduates and students may spend pleasant and profitable holidays at a very small cost in European countries which have depreciated exchanges. Apart from the useful and interesting experience to be gained in this manner, students travelling on the continent may contribute largely to the cause of European peace by getting to know and understand the lives, aims, and difficulties of the youth of other countries. An arrangement has been made whereby a representative of the European Student Relief in the principal towns of Europe will find the cheapest accommodation and give all possible information to any British undergraduate or student in vacation time who will give him a few days' warning.

The following are the representatives prepared to give assistance in this manner:—Switzerland: C. Hoffmann, 16 Bd. des Philosophes, Geneva; Austria: D. Grant, Rektoratskanzlei, Universität, Vienna 1; Czechoslovakia: Miss M. Quayle, Studentsky Domov, Albertov na Slupi, Prague II.; Germany: A. W. Bonsey, Tieckstrasse 17, Berlin N. 4; Hungary: R. H. Legate, 8, Museum Korut 6, Budapest; Poland: O. Pederson, Kopernika 41, Warsaw; Greece: D. O. Hibbard, 44, Metropolitan-street, Athens; Estonia: G. F. Robinson, Y.M.C.A., Ruutli ulitza, 7a, Dorpat; Latvia: B. Mitchell, Terbatas iela 4, Riga.

The following persons in countries contributing to European Student Relief will not be able to find accommodation, but will be glad to give what assistance they can:—France: R. Vernet, 93, Boulevard St. Michel, Paris V.; Belgium: J. E. Asterrieth, 85, Neir, Antwerp; Holland: Dr. H. C. Rutgers, Hardenbroek, Driebergen. Headquarters in London: Miss Iredale, General Buildings, Aldwych, London, W.C. 2.

Any student or undergraduate desiring further information is invited to write to Mr. C. P. Blacker, 12, Eldon-road, London, W. 8.

WOMEN'S HOLIDAY FUND.

To the Editor of THE LANCET.

SIR,—May we once more through the columns of your paper call attention to the valuable work that is being done by the Women's Holiday Fund on behalf of those whose lives are passed in dismal surroundings and weighed down by heavy responsibilities and anxieties.

It is not sufficiently realised how great are the demands made upon the strength and courage of the working woman, and that she is worn out in the never-ending struggle to maintain merely a decent standard of life. She is a stranger to any form of relaxation or recreation and is seldom, if ever, free from the burden of household cares. As has been truly said: "She combines in one tired personality the careers of mother, wife, nurse, cook, housemaid, bargain-hunter, laundress, and dressmaker." It is not surprising that under such a strain, rendered still more intolerable in many cases by overcrowding, the one on whom so much of the happiness and comfort of the home depends should break down in health or grow stunted in mind and soul. The joy and refreshment which a fortnight's holiday at the seaside or in the country brings to some of these over-tired women is better imagined than described.

Is it too much to ask that all those who enjoy their own holidays regularly every year should send a donation, large or small, to enable the Society, which is in urgent need of help, to send away as many women as possible. The full cost of a fortnight's holiday is under £3. For a mother and baby, for whom a special holiday home is run at St. Leonards, the cost is about £3 10s. All applicants contribute something towards their holiday, being assessed according to their circumstances. Donations will be gratefully received and acknowledged by The Secretary, Women's Holiday Fund, 76, Denison House, 296, Vauxhall Bridge-road, S.W. 1.

We are, Sir, yours faithfully,

A. F. LONDON.
MANUEL J. BIDWELL,
Bp. of Miletopolis.
J. SCOTT LIDGETT.
HELEN A. POWNALL,
Chairman of Committee.

THE MICHELIN GUIDE TO THE BRITISH ISLES, 1923.

THE majority of motorists are so familiar with this excellent guide book to the roads that we need say no more than that the new edition for this year, revised and brought up to date, is now ready, and can be obtained from the Michelin Tyre Co., Ltd., 81, Fulham-road, London, S.W. 3, price 5s.

A Lecture

ON AN

OXIDATIVE MECHANISM IN THE LIVING CELL.

Delivered at St. Mary's Hospital, London, on June 7th.

By F. GOWLAND HOPKINS, D.Sc.,

F.R.C.P. LOND., F.R.S.,

PROFESSOR OF BIOCHEMISTRY IN THE UNIVERSITY OF CAMBRIDGE.

I FEAR that to many, and especially to those whose habits of thought are not chemical, the facts to be put before you must seem technical and remote from medical interests. While this may be the case at the present time, the facts in question bear upon so fundamental an aspect of living processes that sooner or later they must become the concern of the pathologist as well as of the physiologist.

It is never, I think, out of place to urge that the living cell should be thought of as a dynamic, and not a static, system. There is some tendency just now, even on the part of those who have transferred their allegiance from histological studies to studies of colloidal systems, to give descriptions of the cell which are nearly as static as purely anatomical descriptions. The progress of histology is as much to be desired as ever and every essential property of the colloidal state is of urgent interest to the biologist. Let us not forget, however, that the living cell is ever the seat of chemical action. Among the most fundamental of the dynamic chemical events related to life are the oxidations which yield energy to the cell. From the chemical standpoint these oxidations have always had and must continue to have especial interest, because while they ultimately depend upon the influence of molecular oxygen, they are concerned with material which under ordinary conditions do not interact with molecular oxygen. This circumstance constitutes a familiar and fundamental problem of metabolism.

THE IMPORTANCE OF WATER IN BIOLOGICAL OXIDATIONS.

Biological oxidations are always catalysed oxidations. Though our knowledge of the catalysts concerned may be still meagre, it has grown appreciably during recent years. What I am to say has reference to such progress as has been made. Earlier attempts to solve the fundamental problem stated above usually relied upon the conception that molecular oxygen is in some way activated within the cell. One such conception still to the front, and probably justified, is that of the so-called oxidase systems. The essential idea underlying the theory of oxidases is that there exist in the cell in small but effective concentration special substances capable of taking up molecular oxygen in the form of a peroxide. The oxygen thus activated can then be transferred to other substances not themselves directly oxidisable. The description of oxidases is familiar and their functions in the cell are probably limited. I shall, therefore, refer to them only indirectly and briefly at a later point in the discussion.

A very notable advance towards an understanding of biological oxidations was made when it became clear that water plays an important part in the processes involved. The biological importance of the peculiar physical and chemical properties of water come, indeed, to the front from whatever standpoint we consider the dynamics of the living cell. It is well always to remember that living stuff consists to the extent of three-fourths of water. To the teaching of Moritz Traube we owe the first clear suggestion that many oxidations due apparently to the direct influence of atmospheric oxygen are in reality only indirectly influenced by such free oxygen. The direct oxidising agent in these cases is the oxygen of water. Traube's views were perhaps not quite correctly formulated and, superficially considered,

they seemed to contradict the principles of thermodynamics; otherwise their influence would have been earlier and more generally felt. Their later development we owe in large measure to Bach.

To be clear on this matter, we must first realise the fundamental fact that many substances when in aqueous solution, or in contact with water, may undergo oxidation in the complete absence both of air and of molecular oxygen in solution. Such oxidations occur anaerobically. The only possible source of oxygen is the water present. If we inquire more closely into the conditions which make these anaerobic oxidations possible, we shall find that in addition to the oxidisable substance and the water, an agent capable of combining with hydrogen must also be present. The oxygen of water may be induced to change partners if and when, but only if and when, its original associate, the hydrogen, is also provided with a new partner. In other words, in aqueous solutions oxidations may occur in the complete absence of free oxygen, but only in association with reductions occurring simultaneously. Bach speaks of the combined processes in question as "hydrolytic oxidation-reduction processes." When uncatalysed, such processes usually proceed so slowly as to elude observation; but they are peculiarly susceptible to catalysis. The circumstance of significance for us is that the living cell is rich in enzymes capable of catalysing just this type of change with remarkable efficiency.

It will be convenient during further discussion if, in accordance with present usage, I speak of the substance which, in the kind of chemical system we are considering, becomes oxidised by water as the "oxygen acceptor" and of the substance which is simultaneously reduced by hydrogen as the "hydrogen acceptor."

MOLECULAR OXYGEN AS HYDROGEN ACCEPTOR.

It should be called to mind at this point that life is possible without oxygen. In the metabolism of the many parasites which live anaerobically, the maintenance of a supply of hydrogen acceptors is of the utmost importance. It is furthermore quite likely that in more normal forms of metabolism processes of the kind we are considering occur at intermediate stages, and perhaps especially when for one reason or another the contemporary oxygen supply becomes deficient. The point of greatest importance for us to remember, however, is the following: In practically every case of oxidation due to the oxygen of water the hydrogen acceptor, instead of being some product of metabolism, may—whenever it is available—be molecular oxygen itself. Although the fact seems paradoxical, we may have chemical systems, of which the living cell is a conspicuous example, in which atmospheric oxygen oxidises the hydrogen of water, while the oxygen of the latter is engaged in oxidising a dissolved substance. To make the possibility of this appear as logical to the mind many points have to be taken into consideration: first, the nature of the molecular species present in a mass of water (they are certainly not all simple H₂O molecules!); next the nature of the catalytic system involved, and perhaps also the formation of temporary intermediate associations between the water molecules and those of the substance oxidised.

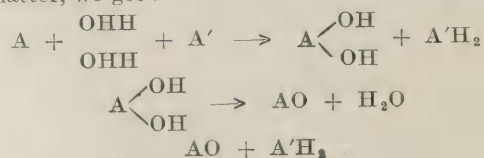
To demonstrate experimentally the occurrence of the chemical events in question, when they proceed anaerobically, a simple and familiar technique is commonly employed. Into a system comprising a preparation from an animal tissue and a substance of which the oxidation is to be studied such an indicator as methylene-blue is introduced. This being a reducible substance acts primarily as an efficient, if artificial, hydrogen acceptor. It also acts, because of its loss of colour on reduction, as a convenient indicator of the progress of events. If, for instance, we make a tissue preparation in such a way that it does not by itself reduce methylene-blue, and this may be easily done by washing the original tissue with water, the addition of this or that substance may restore the reducing power. If it does so we may be sure that

the substance in question undergoes an oxidation which is simultaneous with the reduction of the methylene-blue. I might mention a large number of instances in illustration of the fact that substances are thus anaerobically oxidised by tissue catalysts in the presence of efficient hydrogen acceptors, such as are represented by methylene-blue.

I will content myself with one. Morgan, Stewart, and I have shown that the familiar biological oxidation whereby the purin bases xanthin and hypoxanthin are converted into uric acid can, in the presence of methylene-blue, proceed anaerobically. The enzyme concerned is present in many tissues and, oddly enough, like the Schardinger enzyme which oxidises aldehydes, it is passed by the mammary gland and occurs in milk. In the latter it is very easy to demonstrate its properties and to make quantitative studies of its activity. If air be excluded, milk, of course, does not by itself oxidise the bases; but even under rigidly anaerobic conditions, if methylene-blue as well as xanthin or hypoxanthin be added to the milk, oxidation proceeds apace and uric acid can be afterwards separated from the fluid. The significant fact, however, as I would once more emphasise, is that atmospheric oxygen can take the place of methylene-blue as the hydrogen acceptor. If milk containing either of the purin bases be well aerated uric acid is rapidly formed. It is interesting to remember that the change involved is one most difficult to induce by the use of laboratory reagents which bring about direct oxidations. Since under the influence of a biological catalyst it proceeds rapidly *either* anaerobically or aerobically, and since there is good reason to believe that the same catalyst is concerned in each case, we can hardly escape from the conclusion that in the normal biological production of uric acid the oxygen brought to the tissues does not act directly but indirectly through the agency of water.

When we come to inquire as to the precise chemical mechanism involved in the interesting partition of the constituents of water between two acceptors we meet some gaps in knowledge. Oddly enough, we know less about the nature of the molecules present at any moment in a mass of water under ordinary conditions than about those in many other fluids. We do know, however, as I have already said, that they are not simple molecules represented by the familiar H_2O . Modifications occur which may involve great chemical activity, and with these the oxidising catalyst may have special relations.

A simple view, however, is to suppose that the oxygen acceptor takes up hydroxyl groups while the hydrogen acceptor simultaneously removes hydrogen atoms. If A represents the former acceptor and A' the latter, we get:—

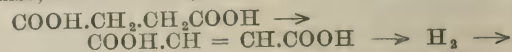


We finish, then, with AO and $A'H_2$, representing an oxidation and a reduction simultaneously accomplished. If A' be oxygen we shall get AO and H_2O , the oxidation of A being the essential and only observed result. Whether we are to consider such events as involving the ions of water or the intermediary formation of additive molecular compounds is not yet clear.

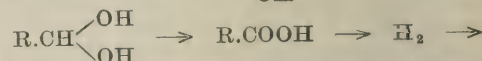
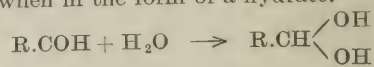
HYDROGEN TRANSPORT.

You must here realise, however, that a view has been taken which, at first sight, seems to make the water molecule of less general significance in the processes we are considering. This view provides a standpoint from which it is specially convenient to consider certain facts which are to form the chief theme of my lecture. All the earlier attempts to explain biological oxidation looked, as I have already said, to the activation of molecular oxygen, by some agency or other, as the essential happening. H. Wieland, however, has advanced the view that we

must look rather to the activation of hydrogen. The activity of a catalyst promoting such oxidations is according to Wieland spent primarily in conferring mobility upon hydrogen atoms contained in the molecule of the substance to be oxidised, so that these are readily transferred to an acceptor which may be atmospheric oxygen. Often, of course, we speak of an oxidation when a molecule suffers no more than a removal of hydrogen. Certain cases of oxidation by the tissues come into this category and allow of simple application of Wieland's view. Many living tissues, or preparations made from them, readily oxidise, for instance, succinic acid to fumaric acid.



This may occur anaerobically when suitable hydrogen acceptors are present in the system, or aerobically when the activated hydrogen becomes oxidised to water. On the other hand, in other and perhaps more significant cases oxygen is itself added to the molecule undergoing oxidation. In Wieland's view this is because hydrogen is activated after water has become associated with the molecule. The oxidation of aldehydes to the corresponding acids is a process powerfully catalysed by agents in the tissues. There is good reason to suppose that the aldehyde is oxidised when in the form of a hydrate.

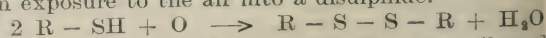


Here again the process may occur with or without free oxygen. It occurs always if a suitable hydrogen acceptor be present. Even in Wieland's view it should be observed water is the source of the oxygen actually and directly concerned in the oxidation. We may now, however, conveniently speak of the oxygen acceptor alternatively as a "hydrogen donor" (Thunberg), and think of the essential process as one of hydrogen transport.

This conception of hydrogen transport makes easy a discussion of the facts which I am now to put before you. I would commend them to your notice mainly because they relate to an oxidative mechanism present in the living cell which from the chemical standpoint is likely to prove easier of understanding than the still somewhat elusive phenomena of enzyme action.

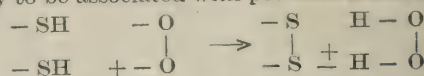
ACTION OF AN ORGANIC SULPHUR COMPOUND IN LIVING CELLS.

Many of the tissue catalysts responsible for particular oxidations are found to be highly specific and to show the instability common to enzymes. It would seem, however, that in addition to the enzymic systems the cell possesses at least one chemical mechanism, with more general functions, comprising factors which are thermostable and relatively easy to study. So far back as 1908 the suggestion was made by A. Heffter that some organic sulphur compound in the living cell might prove to be responsible for part of the reducing power displayed by animal tissues, which might also, perhaps, act indirectly as an oxygen carrier. It is well known that the *sulphydryl* or *thiol* group, $-SH$, when in certain combinations is spontaneously oxidisable ("autoxidisable"), the substance containing it being converted on exposure to the air into a disulphide.



On the other hand, the disulphide form is easily reducible, so the two forms constitute a reversible system.

Two possibilities seemed to present themselves if such a sulphur compound were in the cell. As in most autoxidations the conversion of the thiol group is likely to be associated with peroxide formation.



So that its spontaneous oxidation might provide active oxygen capable of being transferred to sub-

stances not of themselves autoxidisable. On the other hand, the disulphide form whenever produced might well act as an efficient hydrogen acceptor in the sense I have been discussing. As a matter of fact, most, if not all, living cells do contain such a sulphur compound, and it can be shown to play a significant part in oxidations which occur in the cell.

INFLUENCE OF GLUTATHIONE.

In 1921 I was able to isolate from the yeast cell and from various animal tissues a substance which I have called *glutathione*. It has proved itself to be a dipeptide containing the amino-acids, cysteine, and glutamic acid. It is the cystein moiety, of course, which carries the sulphydryl group, and it is to this that the significant properties of the substance are due. Free cysteine, however, does not and cannot accumulate in the cell, and glutathione subserves the functions I am about to discuss better than free cysteine could do, because both its oxidised and reduced forms are freely soluble. Cystine, the oxidised form of cysteine, is of course exceedingly insoluble.

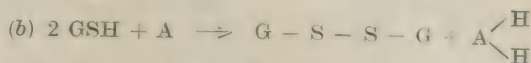
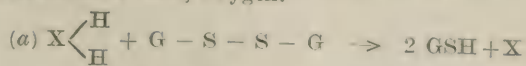
It is necessary that I should ask you to consider rather closely some of the properties of glutathione in order that you may appreciate its functions in the cell. We need not trouble further about its constitution, save in respect of its sulphur groupings. We may represent the two forms in which it exists by means of simple diagrammatic formula thus:



In the tissues when freshly removed from the body the substance is found to be mainly present in its reduced form. This form is autoxidisable, and the normal oxygen supply from the blood must condition its continuous oxidation. It must therefore be also continuously reduced. It is indeed easy to show by a colour reaction that there are factors in the tissue which are capable of reducing the substance. If a solution of the oxidised form at the hydrogen-ion concentration proper to the tissues be placed in contact with fresh tissue it proves to be rapidly reduced until a definite equilibrium between the oxidised and reduced forms is established. It is essential that these facts should be clear at the outset. In the tissues the -SH is autoxidisable; the -S-S- group becomes reduced. A little consideration will show that the presence of glutathione must therefore involve a continuous transport of hydrogen within the cell. Other facts, proved experimentally, will make the nature of its influence clearer. If fresh tissue—muscle, for instance—be thoroughly washed with cold water, the whole of the glutathione will—inter alia—be removed. The washed tissue will now be found to have lost its original capacity for reducing methylene-blue under anaerobic conditions, and also its capacity for taking up oxygen under aerobic conditions. It no longer “respires.” Now the addition of glutathione in relatively very minute amount restores to a considerable extent the capacity of the washed tissue to reduce and to respire. This is not because the added glutathione acts as combustible material, but because its sulphur groupings act as catalysts.

The situation is therefore this: In the washed tissue are substances quite insusceptible of oxidation under the direct influence of molecular oxygen, which is of course what the cell receives from the blood. These same substances nevertheless freely undergo oxidation when in contact with the molecule of glutathione. How can we picture the mode of its action in this case? We think first of all of a simple transport of hydrogen in accordance with Wieland's conceptions, and the justification for doing so is that when the system reduces methylene-blue there must be such transport, since it is the addition of hydrogen and nothing else which converts the blue compound into its leuco form. We may picture the difference between the anaerobic and aerobic events as being merely that in the latter oxygen becomes the hydrogen acceptor. The process may be represented in the

following diagrammatic scheme, in which X represents a constituent of the tissues and A a hydrogen acceptor, be it such a substance as methylene-blue, or, in another case, oxygen.



The facts justify the following conceptions. The hydrogen is not directly transportable from the tissue to the acceptor, or is only so transported with a velocity too slow for observation. It is, however, readily transported to the -S-S- group of glutathione, and from the -SH group thus formed it is again readily transported to the final acceptor. The oxidised form of glutathione may therefore be termed an intermediate hydrogen acceptor, and the presence of the substance in effect catalyses hydrogen transport. It should be noted that while, on these lines, a tissue constituent would only be oxidised in the sense of losing hydrogen, the essential mechanism remains the same if, as in the more general case referred to earlier, the substance in question first forms a molecular compound with water. It is then the hydrogen of combined water which is transported, while the substance is left combined with oxygen.

The question now arises: Is any enzyme remaining in the washed tissue also concerned in this remarkable transport of hydrogen? Is glutathione to be considered as belonging to the category of substances commonly classed as co-enzymes? It would seem not. If the washed tissue be heated to 100° C. or even submitted to prolonged boiling, its behaviour in the presence of glutathione is only altered in the sense that (owing, I think, to the increased permeability) the velocity of its oxygen uptake when it is aerated is increased. The total amount of oxygen taken up, some 2 litres per kilo of tissue, remains substantially the same. Although therefore many substances, of which some were earlier mentioned, require for their oxidation the aid of highly specific tissue enzymes, there are certainly materials in a tissue, far from unimportant quantitatively, which, with glutathione, form a thermostable system capable of taking up ordinary molecular oxygen, or, if you will, of respiring. I am to-day, unfortunately, quite unable to tell you what these materials as a whole may be. The phenomena have been under study for a short time only, and this particular aspect of the study has proved difficult. I can, however, mention substances of which the oxidation is actively catalysed by the substance glutathione. These are the fats which contain unsaturated fatty acids. In dealing with the oxidation of these fats I must, however, complicate somewhat the relatively simple account so far given of the behaviour and functions of glutathione. I trust I can make matters clear here, because I think the complications referred to really add interest to my story.¹

If what I will now call a thermostable tissue-residue be suspended in, say, Ringer's solution containing a suitable concentration of hydrogen ions, and if the suspension be then shaken in a Barcroft's differential manometer, it will be found that little or no oxygen is taken up. If now oxidised glutathione be added to the system, uptake of oxygen immediately begins and proceeds to the limit referred to above. It ceases, of course, when all the special materials remaining in the tissue preparation are oxidised. If, however, to the above system an emulsion of an unsaturated fat (linseed oil, cod-liver oil, &c.) be added, the uptake of oxygen is greatly increased. With certain qualifications it may be said that the increase is proportionate to the amount of fat added. Now the fat emulsion by itself takes

¹ The facts concerning the oxidation of fats have not yet been published. Prof. Otto Meyerhof, working not with a natural cell constituent but with thioglycolic acid, has found that the thiol group catalyses the oxidation of unsaturated fatty acids.

up oxygen with a velocity which relatively to its behaviour in the above system is extremely small. The tissue alone has no effect upon this velocity. The sulphur compound is essential to the catalysis. There is this complication in the facts, however. The oxidation of the fat is catalysed by glutathione alone, that is, when no tissue preparation is present. Only—and this point is very important—the reduced ($-SH$) form of the glutathione must be present from the first. The reason for this necessity is not far to seek. The fat by itself, unlike the tissue residue, has no power to reduce the disulphide group ($-S-S-$) of the oxidised form. There can in this case, therefore, be no question of the simple hydrogen transport so fully discussed above.

What, then, is the chemical mechanism at work when the unsaturated fats are oxidised under the influence of the sulphydryl (SH) group? It is highly probable that during the autoxidation of the sulphur group an unstable peroxide is first formed, and the oxygen so taken up is, in whole or in part, transferred to the fat. If this be so, those of you who are familiar with accepted views as to the constitution of "oxidase" systems (with which I must not stop to deal) will recognise that glutathione comes near to being the factor assumed to be present in such systems—the factor, namely, which forms with molecular oxygen an organic peroxide. In the case at least of unsaturated fats glutathione acts, however, without the assistance of a peroxidase or its equivalent.

In any case, this constituent of living cells seems capable of playing two parts as a catalyst of oxidations. It may facilitate both hydrogen transport and oxygen transport. To say the truth, this might well be expected from the nature of its active groups and from the reversible nature of the essential changes which they undergo.

DISAPPEARANCE OF THE EFFICIENT CATALYST.

I must not leave untouched one interesting aspect of the facts just mentioned. In the simple system formed by unsaturated fats and reduced glutathione without tissue, oxidation of the former comes always to an end before it is complete. The reason for this is that *pari passu* with the oxidation of the fat the $-SH$ group itself undergoes oxidation. As the $-S-S-$ group which results is not reduced by the fat, the efficient catalyst finally disappears from the system. Note how different is the case when the tissue system, capable of reducing the disulphide group, is also present. Then the $-SH$ group as oxidised is continuously reconstituted and oxidation of the fat continues as long as the reduction continues. We see, then, that the oxidation of a substance involving one type of change (let us say hydrogen transport) may control the oxidation of another substance involving another type of change (oxygen transport). We may recognise here an indication of that correlation and organisation of chemical events which is so characteristic of living tissues. The facts adumbrate, or perhaps even indicate lines on which we can come to understand how in the body the oxidation of fats may depend upon the oxidation of carbohydrates.

Perhaps the matters I have put before you with imperfect exposition and without illustrative demonstrations may prove obscure on first hearing. I shall be content if I leave one impression on your mind. You have had before you a case in which catalysis in the cell is determined by the properties of a relatively simple molecule. The mechanism of this catalysis, if not yet wholly understood, is one which after further study on quite ordinary chemical lines should become clear. Is it not likely in the case of other and more elusive catalysts, such as enzymes, that some simple aspect of molecular structure—something analogous with the active sulphur groups of glutathione—is responsible for their activity? The association with colloidal systems, which is responsible for the apparent instability of such catalysts, however important, may be, in respect of the actual chemical mechanism involved, a secondary circumstance.

MILD SMALL-POX.

By J. H. GARRETT, M.D. DURH., D.P.H.,
MEDICAL OFFICER OF HEALTH, CHELTENHAM.

SOME parts of England have been subject to a new experience within the last months in connexion with small-pox, the disease being of such a character as to require a special title such as that which heads this article. For it is my intention to give to "mild small-pox" a signification to indicate something distinctive and different from "small-pox" as commonly conceived. It is a small-pox that very rarely results fatally, whose symptoms are so feeble as to be commonly overlooked, or are at most indicative of nothing worse than a cold, a bilious attack, or other slight and temporary ailment. The body and spirits are affected so little as to negative the necessity of staying in bed, or even within the house, but for the appearance of a peculiar and persistent eruption on parts of the skin, which sooner or later leads to the discovery of the case to a doctor, who may easily fail at first to recognise it as a case of small-pox.

Recent Recrudescence of Small-pox.

Small-pox of any type had until recently become of such rare occurrence in Britain that a very great percentage of our younger medical practitioners have never had the opportunity of seeing a case. The older practitioners who, like the writer, may have prided themselves upon a greater experience, probably saw their small-pox a long time ago, very likely as long as 20 years, which is too long a time to be serviceable when the disease crops up in a new and unexpected guise. The result of such lapse of time is to give rise to a conservative incredulity in the minds of these older men, and a bias in favour of chicken-pox, begot by numerous bad cases of chicken-pox having been encountered as a commonly recurring experience in their practices, some of which were sent into quarantine at the isolation hospital unnecessarily, as the sequel seemed to show. In connexion with the first cases of mild small-pox met with, the mind is also affected by the argument that there has been no small-pox in the locality. How, therefore, can this be small-pox? The late experience to which I began by referring, however, appears to require an alarm note to be sounded to awaken practitioners to the very likely occurrence of this mild type of small-pox in any part of Britain. In South Yorkshire and Derbyshire the cases that have been recognised total some hundreds, and the disease is spreading and is bound to spread further. It is now occurring in growing numbers of cases in the county of Gloucester, the first case or cases having perhaps been brought down from further north, and the centres of its appearance include some of the most remote agricultural villages as well as the more prominent towns of this county. The connexions of the patients with railways, motor char-a-bancs and other vehicular traffic, and with various public institutions, point clearly to the likelihood of the spread of the disease to all parts, so that every doctor should be expectant of meeting with a case.

Medical officers of health when they hear of cases, or cases that are suspicious of being small-pox, are under obligation to immediately report the matter to the Ministry of Health. This will very likely bring in one of the medical officers of the Ministry. It was Dr. W. Vernon Shaw who came to Cheltenham, and in acknowledging his great assistance to me at the outset, I call the attention of every medical officer to the advantage of being able to consult with a confrère who has been occupying himself in visiting the parts of the country subject to outbreaks of mild small-pox, and has seen numbers of cases of the disease, and noted various circumstances attending the cases, all of which renders him expert beyond a common degree in the diagnosis of such cases and in their discovery. It may be one's fate to become as expert as he, but this will not be at first, and he will be able to

shorten the road to such desirable efficiency. The lessons I thus derived were of great advantage to myself and the town I serve, and I am impressed with the great public use of this department of the Ministry of Health.

An Explanation Sought for the Mildness.

It appears that a considerable experience of mild small-pox has been had in the United States, where its usually benign course, as compared with the expected malignancy of small-pox as formerly known, has led to propositions for a new name for this type of the disease. I believe that experience will negative the introduction of any new word as title, since the evidence of its being all one disease is too potent to admit of a separation; in fact, it would be a fatal policy to consider the very mildest case anything other than small-pox. In the course of experience of any considerable outbreak, evidence will be obtained of the tendency of signs and symptoms to vary within wide limits, and, occasionally, for a case to occur of such severity as to present a very ugly appearance. Even in the same family, presumably according to differences of individual susceptibility, the cases occurring at the same time, and derived from the same source of infection, vary much, the diagnosis of the mildest case being assisted and confirmed by the existence of the one or two cases of much more marked character. A considerable proportion of the cases are, however, of the utmost triviality apart from their power of infecting others to produce further cases, some amongst which will always be of a more decided nature. In following up cases that have occurred through two or three generations of infection, a suggestion arises that the mildness of the case tends to decrease as the number of successive cultures in the human body increases. I am not sure enough of this to insist upon it, and the acceptance of such a theory appears to require some other mode of origin than the invariable derivation of infection from a previous case. But in connexion with an outbreak amongst and in near relationship with the children of a school, the triviality of the originating cases was extreme, whilst the evidence that they were cases of mild small-pox, and that they had infected others with whom they came in most close contact, some to develop marked and unmistakable signs, was undeniable. That cases are derived from previous cases is of easy affirmation, but the denial of any other mode of origin is not authorised by any positive knowledge we possess. This at least can be remembered in reviewing the possible cause of such very mild cases, and sufficient evidence may at length be obtained to establish what is indeed the fact as to their origin.

The popular mind is prepossessed with the idea that small-pox must invariably be marked by a severe illness and a rash of disgusting appearance that leaves the face scarred, if recovery should result. It is not surprising, therefore, that parents and others will not readily believe that they or their children are suffering from mild small-pox when signs and symptoms are as insignificant as they may be. The fact is that small-pox, like other diseases, may occur in any degree of severity, from one diagnostic spot occurring in a watched contact with no perceptible illness at all, up to the worst case that results in speedy death. In past epidemics of small-pox, such as that which happened at Gloucester in 1896, where the recognised cases numbered thousands and the deaths hundreds, it is highly probable, judging from our present experience, that very many cases occurred of the nature of mild small-pox, which were never recognised, but which assisted to extend the direful pest.

Small-pox Modified by Vaccination.

I have been interested, in common with many others no doubt, with the theory of Dr. C. K. Millard, medical officer of health for Leicester, which inveighs against the virtue of a general vaccination as protective against small-pox. Though a thorough believer in the preventive influence of vaccination, he has held

that the value of vaccination is much lessened by reason of being the cause of a number of modified cases of small-pox, occurring in those persons who were vaccinated so long previously as to have lost the total preventive power of vaccination, but who have retained a partial protection which may result in a modified case of small-pox which is likely to be overlooked, and, being infectious, give rise to more cases than if the disease had occurred to a more downright degree in an unvaccinated person. We have now throughout the country a population largely unvaccinated. In my recent experience of mild small-pox, all the juvenile cases were in unvaccinated children or adolescents, whilst the adults who had been vaccinated in infancy, 30 to 60 years previously, got the more definite attacks, which, though still mild, could not be mistaken. In connexion with Dr. Millard's proposition I wish to make it clear that in mild small-pox we have degrees of modification more pronounced among the unvaccinated than anything of the sort that has ever been attributed to previous vaccination, however long ago done. There must also always be a doubt as to whether the modified case occurring in a vaccinated person is a naturally modified case of mild small-pox, or that the modification is due to vaccination. The former appears most likely, and the contemplation of an outbreak of mild small-pox serves, in my mind, to discount almost entirely what Dr. Millard has advanced.

There is evidence here, and everywhere, that recent vaccination has a very powerful and pronounced protective influence against mild small-pox, and what is also very interesting is that mild small-pox exercises as strong a protective influence against after-vaccination. This is easily capable of practical demonstration and has been demonstrated at Cheltenham in a most positive way. Even the more trivial cases of mild small-pox have been promptly rendered exempt from the effect of vaccination, whilst all the brothers and sisters of their families have shown a usual positive result when vaccinated at about the same time, the whole having been previously unvaccinated. Two or three weeks from the first occurrence of the smallest number of eruptive spots of mild small-pox appears to be sufficient time to insure this preventive result against vaccination being obtained. Vaccination and mild small-pox are equally preventive of each other. Previous recent vaccination (say up to seven years) is consequently an assistance in determining a doubtful case as not being mild small-pox. Failure of vaccination after an attack of mild small-pox is confirmatory of the diagnosis.

Contacts and School Closure.

The infectiousness of mild small-pox varies much in different cases. In this it resembles other infectious diseases. We know well that in scarlet fever and diphtheria it is not that all cases are very infectious, but only one here and there. This appears to be the case in a marked degree with mild small-pox, and the severity of signs and symptoms, or the bad appearance of the case, does not of necessity indicate a corresponding degree of infectiousness. Several of the worst-looking cases, though much exposed, have resulted in no further cases that could be traced to them. On the contrary, a case that was of a trivial description, with not more than ten eruptive spots and no recognised constitutional disturbance at all, gave rise at the end of the incubation period after a short exposure to three other known cases. There is distinct evidence that the time when the rash is first appearing is the most infectious stage of the disease. There is evidence also that the infection is more effective the closer and more persistent the contact. At the school the cases tend to be limited to the class. The child infected at school has the greatest effect in producing further cases in its home. Four children of different families who had very feeble attacks of mild small-pox, which did not prevent them going to school whilst infectious, and which in fact resulted in a few other cases in the school, produced 15 cases in their own homes amongst the unvaccinated members. They

FIG. 1.

Typical Chicken-pox Notified as Small-pox.

The eruption is mainly on the trunk.

FIG. 2.

Mild Small-pox Notified as Chicken-pox.

The eruption is on the face and hands.

FIG. 3.

Typical Mild Small-pox.

The foot in second week of eruption.

FIG. 4.

Mild Small-pox Notified as Chicken-pox.

At first glance this case deceived the author, the distribution of eruption being mainly on the trunk (the back is shown). Pustules on the feet emphatically corrected the diagnosis.

would be at home of course in any case during the most infectious period, and in very close and continuous contact with the brothers, sisters, and parents. Observation of these and other cases has resulted in the suggestion to my mind of the conveyance of the disease by a parasitic carrier, and I mention the itch mite as a possible medium. Such a beginning of mild small-pox in a school, where the bulk of the children are unvaccinated, the first cases being of this mildest of mild types, is alarming when first contemplated as being the likely mode of origin of an epidemic, whose cases might be much more serious as they advanced than as at first initiated.

The watching of contacts in a large school, including daily visits to all absentees to ascertain the nature of the ailment that may be keeping them from school, is

knowledge and judgment and cannot be left to untrained assistants.

Difficulties of Diagnosis.

The difficulties of certain diagnosis of commencing cases of mild small-pox are most considerable. It is only when occupied in searching amongst absentees from school for possible cases of the disease sought for that you become aware of the infinitude of small complaints to which school-children are subject, many of them accompanied by a rash or eruption which may closely simulate the beginnings of mild small-pox without being it (Fig. 1). Here is where recent vaccination is of such great assistance to immediate diagnosis, and relief of doubt. An undoubted prior attack of chicken-pox in a child is also assisting to exclude the likelihood of that disease, though mere

Two Cases of Mild Small-pox in the Third Week of Eruption.

FIG. 5.



FIG. 6.



an arduous business which would become difficult or impossible to perform when many schools were involved. The policy of closing the schools, under such circumstances, requires the most careful consideration, and must generally be negated, as a more effective control can be exercised whilst the school is running. Very urgent circumstances may sometimes indicate the desirability of closing a small school. But where hundreds of children are involved there is no wisdom in closing the school because a few cases of mild small-pox have occurred in it, for by closing you only scatter your scholars and throw your control to the winds. In the instance I quoted of four scholars attending one school, in whom signs of mild small-pox were discovered after they had had time to infect their families and some few others of their schoolmates, the further spread was controlled by the following cases in the school being picked up at the moment of first definite signs of having contracted the disease, the last being discovered at the end of the third incubation period counting from the first known. But the anxiety and labour involved in connexion with that one school showed clearly how easily the watching-of-contacts method for exterminating mild small-pox might, and must, fail if the whole of the schools of a town became affected. The examination of the children calls for the best medical

hearsay, without evidence by pock marks, of this disease having been suffered is not to be relied upon when it is simply the parent who thinks the child has had chicken-pox. Right recognition of the complaint, as well as clear memory of which child of the family had it, and whether it was not really measles, or something else from which the particular child had before suffered, are points upon which confusion in the mind of a mother with a large family is very likely to occur. But recent vaccination is the all-important thing eagerly inquired about as the sheet anchor of protection, and the settling point in diagnosis, which never seems to fail. Perhaps the conditions of the skin which give rise to most doubt as between them and the beginnings of mild small-pox are itch spots, flea-bites, and other insect bites common in the summer season, acne, chronic and intermittent eruptions of boil-like character, urticaria, local erythemas and other rose rashes, impetigo, temporary eruptions of dietetic origin, and simple eruptions without name, ordinarily passing for nothing of sufficient importance to notice, also chicken-pox (Figs. 2 and 4). Formerly, we have had held up to our view the difficulty and importance of determining between small-pox and chicken-pox, but after an experience which has led to frequent close comparison between these two diseases running concurrently, a

condition of expertness is arrived at which enables a diagnosis to be made with considerable certainty from the second day of the rash, if not from the first, though observation through a longer period of time makes the matter more certain, and this even though the case be one of the more trivial instances of mild small-pox. Of course, there are many cases in which one glance suffices to settle the matter either way. Nevertheless, one-glance diagnoses are bad practice and for security's sake every case should be carefully examined from head to foot.

Differentiation from Chicken-pox.

As between chicken-pox and mild small-pox the distribution of the rash, the appearance of the rash, and the length of the continuance of the spots of eruption without much change are visible factors which decide the nature of the case. Thus the rash of chicken-pox will be mainly observable on the belly, back, and sides, with widely scattered spots upon head, particularly the forehead, and limbs. That of mild small-pox will be chiefly on the limbs, very likely extending on to the wrists, hands, ankles, and feet, even perhaps (and this is most useful evidence) affecting the soles and palms; the rash may be scattered over the body and face as well, especially about the mouth, but is not very likely to extend much up the sides towards the axillæ. In chicken-pox some of the spots will appear as simple vesicles, full of clear fluid, and perhaps of rather large size. These vesicles burst quickly and from the second day begin to dry up into a superficial dark-coloured scale. The eruption, in fact, changes in appearance rapidly. In mild small-pox, the spots at first are small, may appear in red pimples, or as round topped shotty elevations which, if they progress, soon become pustular (Figs. 3, 5, and 6). It is rare to see a papule pass into a clear vesicle and the vesicle into a pustule, as in old classic descriptions. The eruption is pearl-like, as if containing thick non-transparent fluid. Either the papular or vesicular stage may fail to occur, but only small elevations that tend to immediately become purulent. These are often rather deeply seated in the cutis, and are several days in reaching full development, and many more in disappearing. Some of them do not quite reach the actual surface to dry off and be shed there, but disappear very gradually by absorption. Many, however, are at the surface, and their tops dry off and are shed, often, but not always, leaving a purple stain in the skin, which may be still a little raised above the general level, and if it exhibits a central depression, and where the eruption is considerable some such are sure to be observed, the condition is highly diagnostic of mild small-pox in its later stage. Such purple spots may be looked for in children upon the backs of the wrists in particular, and may be observed as late as the end of the fourth week of the attack, or later, but ultimately fade away. It is quite common for a considerable part of the commencing eruption to abort, and never reach a stage beyond minute pimples which die back, or gradually disappear by absorption.

The other chief characteristics of mild small-pox include a comparatively slight constitutional disturbance. At the onset there may be rise of temperature, aching of limbs and head, more rarely of the back, vomiting or nausea, nasal catarrh. The complaint at this stage is likely to be considered a bilious attack, a cold, or influenza. Within two or three days these symptoms subside, and the patient feels better, and perhaps goes out until the rash is first observed somewhere between the third and seventh day from the onset. But in the mildest cases there may be no preliminary illness at all noticeable, and nothing is suspected until the rash appears. Usually some slight illness as that above described precedes the rash, invariably so where the case is marked with much rash. The pock marks, when any occur, are shallow, and tend to disappear. There are few permanent scars, frequently none. After the first symptoms of onset have passed off, most patients are happy in their minds and comfortable, and seem, but for the

eruption, to be in their usual state of health. Termination by death may be said to be rare, and to result only when the disease has advanced to the more serious type.

In a disease of this description, the symptoms being so mild as to result in many of the cases being ambulatory, the difficulty of extinguishing the infection must of necessity be very great should it once become in any degree widespread, and in his efforts to isolate instantly every case as soon as it is discovered the medical officer is much assisted by ample accommodation for isolation in hospital. In this connexion the imperative necessity of wards being apportioned for quarantine observation of doubtful cases must always be borne in mind. Happily, at Cheltenham, at the moment of writing, the incubation period from our last case has elapsed without any case occurring, and the town may be said to be free of the disease. The conditions in the neighbouring town of Gloucester, eight miles away, are, however, less happy, and the menace of re-introduction of the infection here from that source is very considerable.

ETHYL CHLORIDE

AS AN ANÆSTHETIC FOR MINOR OPERATIONS IN CHILDREN.

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THE following notes on ethyl chloride anæsthesia in children are the outcome of my own experiences, extending now over some 18 years, and totalling upwards of 15,000 cases without a fatality. My remarks apply only to the anæsthetic as used for children; at the same time, I am of opinion that for all practical purposes they apply equally well to adults, as has been proved in adult cases under my care. The adult, however, takes nitrous oxide gas much better and more effectively than the child, and this modifies the situation, so that in the present article I prefer to leave sub judice the question of the best minor anæsthetic for the adult.

As is well known, opinions are not all favourable to the use of ethyl chloride; but I cannot help taking the view that unfavourable opinions have been based upon results due to the use of unsuitable or imperfect apparatus or some other easily explainable factor, and that where fatalities have occurred quite special circumstances must have been present, or the administrator or operator have taken unusual risks. My experience has been gained in my capacity as dental surgeon to the Queen's Hospital for Children, where practically all of my cases are out-patients.

In the dental department of a large children's hospital a great deal of extraction has perforce to be done, particularly when, as is the case here, the patients are drawn from slum areas. Among out-patients, at any rate, there has been practically no selection of cases, the anæsthetic having been given to all and sundry, of good physique and poor, of all nationalities, and of ages varying from 18 months up to 14 years, which is the hospital age limit. Many of these children have had pronounced cardiac murmurs, or serious pharyngeal obstruction from tonsils or adenoids, and in countless other ways have not been by any means ideal subjects for any anæsthetic. It was, therefore, most essential that the anæsthetic used should have a large margin of safety, and as ethyl chloride has stood the test so well, this brief résumé may encourage others to give it a trial.

Dental operations of a necessity impose a certain limitation on the anæsthetist; ethyl chloride cannot very well be given while the operator is at work, and in consequence I have had no experience in any endeavour to maintain a patient at an anæsthetic level after the acme has been reached, although a repeated dose, or even a third dose, has often been

given during a lengthy or difficult operation. Sometimes considerable bleeding in the mouth is also a feature that cannot be ignored.

The qualities necessary in a good minor anæsthetic are, briefly, safety, ease of administration, reasonable duration of anæsthetic period, and rapidity of induction and recovery. How does ethyl chloride satisfy the above requirements?

Safety.

With regard to safety, the figures given above speak for themselves. They represent an unbroken series of administrations since 1903 by a long chain of resident doctors of the hospital staff, many of them quite new to the anæsthetic, and in no case specialists. The apparatus used can be understood at a glance; a small rubber bag with one opening only, by which it is connected to a face-piece, a stop-cock intervening. Inside the bag is a clip which holds a piece of sponge, and leading to this a tube down which the ethyl chloride is sprayed, a little plug closing its orifice when the bag is charged. Face-pieces can be had in two or three sizes and are interchanged readily; it is important that the size should conform to the patient. Those unfamiliar with the apparatus cannot do better than refer to any illustrated catalogue of anæsthetic appliances. This apparatus is designed for to-and-fro breathing into the bag only, and this is the method advocated; the older way of breathing with admixture of air I consider obsolete and unsatisfactory, after having given it a fair trial.

The ethyl chloride is obtained in graduated bottles of 60 c.cm., and can be sprayed out by means of a specially designed valve and lever; only one hand is necessary to work it. A good administration gives a very fair margin of complete anæsthesia after the acme is reached and the face-piece removed from 20 to 30 seconds is a usual time—enough in most dental cases in children for all the necessary extractions. A very few breaths suffice to attain full anæsthesia, and it is the most rapidly-acting of those in ordinary use. Recovery is quick, at any rate in children, far quicker than from ether or chloroform, and delayed recovery is uncommon.

The dose sprayed into the bag will vary in children from 2 to 5 c.cm. according to age; the latter amount should be sufficient for a boy or girl aged 13 or 14. If the case is the first—i.e., if there is no residue of anæsthetic left from a previous administration—an extra 2 c.cm. should be put in, but where a number of administrations are to follow each other closely the quantities above will suffice after the first. The extra amount seems to be necessary to produce a preliminary saturation of the sponge, &c.

I hold that the only serious rival to ethyl chloride for our purposes is nitrous oxide; in safety there may be little or nothing to choose between them, but my record of N_2O cases is so much less in number, that I must be content to leave it as a debatable point, merely saying that I have seen no fatalities with either.

Administration.

When we come to administration, even the simplest N_2O apparatus will have difficulties for the inexperienced, and this, as I have invariably observed, leads to considerable waste of gas, and not infrequently to bursting of the supply tube or some other calamity.

In type and duration of anæsthetic period the superiority of ethyl chloride is most manifest. Ethyl chloride anæsthesia is quiet and of a comfortable length, usually with muscular relaxation; N_2O , on the other hand, causes marked and sudden rigidity, opisthotonos, or other contortion, and frequently vigorous screaming, the instant that an instrument is applied. So marked is the difficulty with N_2O that it may be safely stated that, from a dental standpoint, one administration of ethyl chloride will equal three of the former in effectiveness.

Ethyl chloride has one drawback, and so far as I am aware, one only—its odour, which comes as a surprise to the small patients, and may cause struggling or holding of the breath. I think it, therefore, a good plan to spray a little into the bag to

start with, and after a breath or two to add the full dose; this will do much to obviate the natural alarm.

A Typical Administration.

The following is a description of the method followed in my dental clinic. The mother will have been instructed not to give the child any food for about four hours prior to the operation. The child is practically always in a sitting position in the dental chair, but at times—e.g., when wearing certain splints—the lying down position is adopted. A nurse stands in front to control the patient's hands, and restrain any tendency to slip down in the chair as anæsthesia progresses. A gag having first been placed in situ, the anæsthetist with a bottle of ethyl chloride in a convenient pocket now places the face-piece of the apparatus accurately over the child's mouth and nose so as to prevent all leakage. After a breath or two a little ethyl chloride is sprayed down the tube, and finally the full dose, and the tube then closed with the stopper. In good breathers a very few full breaths will suffice, and full anæsthesia is quickly reached. This can be most readily judged by the breathing, which becomes deep, rhythmic, and stertorous; the pupils become fixed and dilated, with loss of reflexes. Generally speaking, after, say, the third stertorous breath, the patient is ready, and a useful period of quiet anæsthesia results.

A point of great importance in administration is the complete exclusion of all extraneous air; a leaky apparatus or an imperfectly adjusted face-piece means a long induction, uncertain and noisy anæsthesia, and embarrassment of the operator by a struggling patient. The anæsthetist will require both hands to hold the face-piece accurately in position, particularly if the patient is restless; frequent removal of one hand for the purpose of testing the eye reflexes is to be deprecated, nor is it necessary after a little experience, as the acme of anæsthesia can readily be noted by the character of the breathing. Generally speaking, the quicker the patient goes under the better the anæsthesia, though this must not be taken to mean that results are proportional to the amount of the dose, nothing is gained, and certain risks are incurred by an overdose.

Difficulties Met with in Administration.

(a) *Holding the Breath.*—This is common with the older children, and though it delays matters a little does not seriously affect the result; as is mentioned above, it may often be avoided by not spraying in the full dose all at once.

(b) *Forward Sagging of the Patient's Head.*—The chin being depressed downwards on the thorax, breathing may be considerably hindered. This may be easily dealt with by the nurse or operator pushing up the chin.

(c) *Laryngeal Spasm.*—This may occur now and then, more particularly if the dose is rather large or has been abruptly administered. Should this happen, the face-piece must be removed until normal breathing has been restored, when one can carry on.

(d) *Syncopal Attack.*—Normally ethyl chloride acts as a cardiac stimulant, and the colour becomes rosy even in the pale; hence, no doubt, its safety. Here and there in the course of many cases syncope may be encountered, readily recognisable by the bluish pallor which supervenes. No alarm need be felt if the breathing continues regularly. Stopping the operation temporarily and inversion of the patient for a few seconds will restore the colour; usually it will then be possible to complete as may be necessary. Further measures are very rarely called for.

(e) *Obstructed Breathing.*—This will be encountered more often; there is a tendency for the tongue to swell or fall back in some cases, and of course there may be adenoids or large tonsils present. Should breathing stop, it is easily dealt with in dental cases by the operator, who, being in front of the patient with the latter's mouth gagged open, hooks the forefinger of the left hand well over the root of the tongue and draws it forward, at the same time pushing up the chin with the right hand; breathing nearly always restarts at once.

(f) *Vomiting.*—Only when instructions as to abstinence from food have been disregarded is vomiting likely to occur during the administration. If blood is swallowed—e.g., in dental or throat operations—subsequent vomiting is unavoidable.

I am of opinion that certain cases of fatality under ethyl chloride could have been prevented by the

prompt freeing of the air passages, as in the simple method described, and would suggest that whenever the operation to be performed permits of it, a dental gag should be placed in situ before administration; the saving of time where it is necessary to assist the patient to breathe being of the utmost importance. The gag used is that known as Brunton's, and acts between the front teeth; it is held in position by an adjusting spring, and is not so easily dislodged as other kinds. Its two pads or cups which engage on the teeth are connected by a hinged arm of rectangular shape, which projects forwards, and is readily swung to one side out of the way when instruments or fingers are placed in the mouth. It must not be confused with any form of gag opened by handles, which latter should, as far as possible, be avoided, as in any but very skilful and careful hands they are apt to do damage. There is a face-piece specially designed for use with the Brunton front gag, which has plenty of room inside it, being shaped to accommodate the arm of the gag; this pattern is invariably used at my clinic.

In this brief account I omit opinions and figures from other sources. No doubt in some cases they might appear to conflict with my own experience. I can only suggest in explanation that practically all my patients have been under the age of 14, and that I am dealing with the closed form of administration only. Within these limits safety certainly seems to lie, whatever may be the case outside them, always provided that the simple precautions given above are observed. The perfect anaesthetic has no doubt yet to be found, but in the meantime ethyl chloride has a great sphere of usefulness for those who know its value.

A SLIDE PRECIPITATION TEST FOR SYPHILIS.

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In the performance of a large number of Wassermann reaction (W.R.) tests one meets with occasional weak or very weak positive results, some of which are undoubtedly non-specific. In the absence of signs or history of syphilis these reactions are usually disregarded. Nevertheless from the fact that, with the use of cholesterolised antigens, non-specific weak results are obtained even with the most careful technique,¹ it is probable that the positivity of the stronger reactions will sometimes be augmented in a similar manner. To control the cholesterolised antigen tests various modifications of the W.R., to be run in parallel, have been suggested; these being mainly the use of simple tissue extracts without added cholesterol, the use of acetone insoluble lipoids, and alterations of the usual time and temperature of the primary incubation. Where large series of tests are performed there are practical difficulties in conducting two series in parallel by different techniques. What is wanted is a control which is simple and rapid, consistently with accuracy, so that it can be performed at the same time as the W.R. The Sachs-Georgi (S.G.) test, introduced in 1918,⁷ provides a control which has given satisfactory results in the hands of many workers. It has many advantages over the W.R., the chief being the reduction of the reagents, and especially the elimination of the most unreliable reagent, complement. But the length of incubation required—from 7 to 48 hours according to different workers—is a drawback to its use as a routine control.

It was shown by Coca 12 years ago⁸ that the cholera vibrio could be readily agglutinated with anti-cholera serum on a slide by a rocking movement imitating the convection current of the water-bath, and this method has since been extended and elaborated by other workers, notably by Garrow.⁹ Five

minutes on the rocking slide will, in the case of the intestinal organisms, give results parallel with those given by the tube method, though at a slightly lower level. It therefore seemed possible that the same method might be applicable to the S.G. test, and this was found to be the case. Doubtless many have tried this method, but I have seen no published results, and as the method seems a satisfactory and very simple control of the W.R., I venture to present my own findings.

TABLE I.
Five Hundred Sera.

W.R.	Slide S.G.				
	1/40	1/20	1/2 to 1/10	Nil.	Totals.
Strong positive ..	95	6	4 (A)	0	105
Moderate positive ..	8	12	4 (B)	0	24
Weak positive and doubtful ..	1 (C)	3 (D)	29	53 (E)	86
Negative ..	0	2 (F)	38 (G)	245	286

Four Cerebro-spinal Fluids.

Strong positive ..	1	1	0	0	2
Weak positive ..	0	0	1	0	1
Negative ..	0	0	0	1	1

Explanation.—Strong positive W.R. = fixation of 8 or more M.H.D. of complement; moderate positive = fixation of 5, but not 8 M.H.D.; weak and doubtful = fixation of <3 to 5, but not 5 M.H.D.; negative = no fixation or the merest trace.

These parallel tests on the 500 sera can be expressed in another manner (Table II.).

TABLE II.

Dilution giving precipitation.	Complement M.H.D. fixed.								
	30	20	16	12	8	5	3	<3	0
1280	1	—	—	—	—	—	—	—	—
640	—	3	—	—	—	—	—	—	—
320	2	6	4	—	2	—	—	—	—
160	2	6	8	5	6	—	—	—	—
80	—	1	3	9	12	1	—	—	—
40	—	1	2	2	20	7	—	1	—
20	—	—	—	—	6	12	3	—	2
10	—	—	—	—	4	2	9	5	8
5	—	—	—	—	—	2	2	6	13
2	—	—	—	—	—	—	4	3	17
0	—	—	—	—	—	—	25	28	245

On an average therefore:

$$\text{Fixation of } \begin{pmatrix} 20 \\ 16 \\ 12 \\ 8 \\ 5 \\ 3 \end{pmatrix} \text{ M.H.D. corresponds to precipitation at } \begin{pmatrix} 1 \text{ in } 320 \\ 1 \text{ in } 160 \\ 1 \text{ in } 80 \\ 1 \text{ in } 40 \\ 1 \text{ in } 20 \\ 1 \text{ in } 10 \end{pmatrix}$$

Technique.

In Tables I. and II. are given the results of parallel W.R. and slide S.G. tests on 500 sera and 4 cerebro-spinal fluids. In all cases the W.R. has been performed by the technique known as the Rochester Row method,¹⁰ with the addition of a third row of tubes carrying 8 minimum hæmolytic doses (M.H.D.) of complement. Sera fixing 8 M.H.D. were then put up with 12, 16, 20, and 30 M.H.D. The slide is 29 by 5 cm., cut with a diamond into 20 compartments; this allows of four sera with their serum controls being tested in four dilutions at the same time. Those sera which were positive in these dilutions were then put up in higher dilutions to extinction of precipitation. For the volumes of serum dilutions and antigen pipettes of No. 52 Starrett wire gauge were used, one being kept for the serum dilutions and one for the antigen dilution. The sera were put up in drops of neat serum, and dilutions of 1 in 2½, 1 in 5, 1 in 10, 1 in 20, &c., and one drop of antigen dilution added to each except the serum control, which consisted of one drop of neat serum and one drop of saline. For convenience these final dilutions are spoken of as 1 in 2, 1 in 5, 1 in 10, 1 in 20, 1 in 40, &c., though actually they are, according to my calculations, 1 in 1·7, 1 in 4·5, 1 in 9·1, 1 in 18·2, &c. Rotation of the slide, either by hand or by means of

a clockwork device similar to Garrow's, over an angle of 45° on either side of the horizontal, was carried on for five minutes, when the results were read by a watchmaker's lens, and expressed as one, two, or three + according to the size of the flocculi. In the tables one + is taken as the limit of precipitation, though generally a trace was observed in the next higher dilution. The antigen used has been a mixture of alcoholic human heart extract and 1 per cent. alcoholic cholesterol in the proportion of 3 to 2 parts. The same antigen has been used throughout the W.R. tests, but in a different dilution. Bordet's antigen plus cholesterol was tried, but appeared to give no better results than the crude heart extract. Just as in slide agglutination a suspension four or five times the density of that used in tube agglutination is necessary to obtain results that can be easily read, so a much more turbid antigen is required for the slide S.G. than the W.R. With a dilution of 1 in 10 or higher the precipitation is very slight even with high concentrations of

The sera were heated at 56° C. for one hour before testing. I do not think there is any perceptible advantage in this period over the usual half-hour for the W.R., though Dreyer and Ward recommend 1½ hours. A number of sera were tested in parallel by slide and tube S.G.; in the latter the technique of Dreyer and Ward¹² was followed closely, the results corresponding very nearly. With strongly positive sera the "zone phenomenon" is manifested on the slide as in the tube—i.e., the 1 in 2, and 1 in 5 dilutions frequently show less precipitation than the next three to five dilutions.

Analysis of Results.

Of these 500 parallel tests a superficial examination shows agreement in 395 (79 per cent.), and disagreement in 105 (21 per cent.); and of the latter the W.R. yields stronger results than the slide S.G. in 61 (12.2 per cent.), and the S.G. than the W.R. in 44 (8.8 per cent.). Further analysis of the cases shows that in neither of these groups is the one or the

TABLE III.—RESULTS OF RETESTING SERA OF FORTY-SEVEN CASES.

W.R. (M.H.D. of complement fixed.)		S.G. (Dilution giving pre- cipitation.)		Interval in months.	Remarks.
1st	2nd	1st	2nd		
0	0	0 0 5	0 2 5	2½ 1 1	12 cases—9 treated syphilis, 1 doubtful, 2 not syphilis. Old treated case; 2 negative W.R.'s previous to first of tests. Old case; 3 courses before first tests, which succeeded a number of positive W.R.'s. Old case with 2 previous neg. W.R.'s. Old case; no pos. W.R. for over 2 years. Treated case; pos. W.R. 2 months before first tests. No signs, but had syphilitic baby 7 months before first tests; no treatment, but provocative injection before second tests.
3	3	10	5	3	Treated before tests and further treatment between. Pos. W.R. 4 months before first tests.
3	3	10	5	4	Incomplete treatment 3 years ago; further treatment between tests.
8	8	80	20	3	16 years. Treated. Previous pos. W.R.'s.
		80	80	2½	7 years. No treatment till after first tests.
0	3	0	0	2½	2 years. Treated. Long series of weak and neg. W.R.'s.
0	12	0	80	4	4 months. Treated before first tests; provoc. injec. before second.
5	8	5	80	2	Over 1 year. Treated before first tests. Previously 2 pos. W.R.'s.
		20	40	3	2½ years. Several courses; 8 previous pos. W.R.'s. Provoc. injec. before second tests.
		40	40	2	1 year. Two courses; 3 previous pos. W.R.'s. Provoc. injec. before second tests.
3	0	0	0	1	Not syphilis; sent because mother syphilitic. Provoc. injec. before second tests.
		0	0	2	Old case treated before first tests, not since.
		0	0	2½	Not syphilis. Eye case. Provoc. injec. before second tests.
3	3	10	2	2½	Old case; 4 courses. Second test was first neg. W.R.
		0	0	3	3 months. Treated before and between tests.
		10	0	1	Case of diphtheria previously mentioned.
		0	0	3	Not syphilis. Child of syphilitic mother treated before child's birth.
		0	0	2	Not syphilis. Multiple growths of bowel. Provoc. injec. before second tests.
3	0	0	0	1	8 years. Treated (several courses). Many earlier pos. W.R.'s, but last one neg.
		0	0	1	Nothing but history of repeated abortions.
		0	0	4	Not syphilis. Psoriasisoid rash at intervals. No treatment. Provoc. injec. before second tests.
		2	2	4	Nearly 3 years; 4 courses before first tests; further treatment since. Several previous pos. W.R.'s.
		10	0	2½	2 years. Treated. Last 5 W.R.'s all neg. Last pos. nearly 2 years ago.
8	5	80	40	2½	Treated since first tests, not before.
		40	20	2	Chancere shortly before first tests. Treated since.
		80	20	2½	18 months; 2 courses before first tests, 1 between tests. W.R. neg. after first course, but pos. again 4 months later.
16	8	160	40	3	Tertiary syphilis. Treated after first tests.
16	3	40	10	2½	Duration unknown. Treated before and between tests.
16	0	160	20	2½	1 year; 2 courses before first tests, 1 between. W.R. came down after each course, and returned to positive again.
30	5	160	40	2½	6 months. Treated before first tests. No record of previous W.R.'s.

strongly positive sera. A dilution of 1 in 5 appeared to give the best results, the antigen being measured into a dry tube and the salt solution slowly dropped into it from a height of 12 inches. Holker¹¹ has pointed out that though the concentration of NaCl in the W.R. is limited to 0.85 per cent. there is no such limit in determining the optimum conditions or the interaction of serum and antigen alone. Consequently various concentrations of NaCl and of other electrolytes were tried. It was found, however, that in the higher concentrations (from 5 to 10 per cent. NaCl) spontaneous flocculation occurred more or less rapidly. Concentrations of 1 to 5 per cent. gave fairly stable antigens, but the results with positive sera were no better than with ordinary saline (0.85 per cent. NaCl). Further experiments in this direction will be conducted. An antigen diluted in 5 with saline is stable and keeps its sensitiveness unimpaired at least for several days.

other test entirely correct. The evidence on which such analysis rests is too lengthy to be published in extenso, and it is admittedly incomplete, but is given without known bias.

Group A, 4 cases, strong positive W.R., weak S.G. So far as can be judged from previous W.R.'s, and from clinical notes supplied, the W.R. more correctly reflects the condition in all four cases.

Group B, 4 cases, all moderate positive W.R.'s, two showing precipitation at 1/10, and two at 1/5. These are all old treated cases, in which the W.R. may be more correct in two, and the S.G. in two.

Group C, one case incompletely fixing 3 M.H.D. (± — —), and showing precipitation at 1/40 dilution. The S.G. is more probably correct, since the case gave three previous strong positive W.R.'s, the last three months earlier.

Group D, 3 cases, in all of which the S.G. is more likely to be correct, two having given three previous strong positive W.R.'s, and the other being on old untreated case.

Group E, 53 cases. In this group it is difficult and often impossible to decide from the clinical and other evidence which test is the more correct, and it is just this class of case which particularly needs controlling. It is impossible to give an extended analysis of these cases, but on the whole I judge the W.R. to be more correct in 15 cases, and the S.G. in 38. Of the 38 cases in which the S.G. is judged to be correctly negative 20 are almost certainly not syphilis; these include four control cases of other diseases, to which further reference will be made.

Group F, 2 cases, both giving negative W.R.'s, and both showing precipitation at 1/20 dilution. Both were cases of known syphilis, one a recently treated case, the other an old well-treated case, which gave a strong positive W.R. (fixation of 16 M.H.D.) three months earlier. In both cases the S.G. is judged to be the more correct.

Group G, 38 cases. Four of these were probably not syphilis. The remaining 34 were all treated cases, and both tests may be considered correct, the difference being comparatively small—e.g., W.R. $\pm -$, S.G. 1/2 or 1/5.

Among the total cases are included 23 parallel tests on 22 patients suffering from other diseases, mostly scarlet fever, diphtheria, and nephritis, in none of whom was syphilis suspected. Of these both tests were negative in 17 cases. Four gave negative S.G. reactions and $\pm -$ W.R.'s, which must be considered non-specific. The remaining case, which was tested twice, was a case of diphtheria, which on the twentieth day of the disease gave W.R. $\pm -$ and S.G. precipitation at 1/10 dilution; tested again five weeks later during convalescence the results were W.R. $\pm -$, S.G. nil. There were no signs or family history of syphilis, and the weak positives of both first tests remain unexplained.

Summarising the analysis I conclude as follows:—

	Correct.	Incorrect.
W.R. ...	454 = 90.8%	46 = 9.2%
Slide S.G. ...	475 = 95.0%	25 = 5.0%

During the period covered by these tests there was an opportunity of retesting the sera of 47 cases. The results, which are of some interest, are shown in Table III., and are arranged in groups as the second W.R. remained stationary, rose, or fell.

References.

1. Kolmer: Arch. Intern. Med., 1913, xii., 660.
2. Zinsser: Infection and Resistance, 1914, 201.
3. Snow and Cooper: Amer. Jour. Med. Sci., 1916, 152, 185.
4. Smith and MacNeal: Jour. Immunol., 1916, 75.
5. Lewis and Newcomer: Jour. Exper. Med., 1919, 351.
6. Kahn: Jour. Infect. Dis., 1921, xxix., 637.
7. Sachs and Georgi: Med. Klin., 1918; Münch. med. Woch., 1919, 440.
8. Coca: Bull. Manila Med. Soc., 1910, ii., No. 1 (quoted by Krumwiede, Jour. Immunol., 1920, v., 155).
9. Garrow: Jour. of R.A.M.C., May, 1917.
10. Medical Research Council, Special Report Series, No. 14.
11. Holker: Jour. of Path. and Bact., 1922, xxv., 522.
12. Dreyer and Ward: THE LANCET, 1921, i., 956.

A FURTHER STUDY OF A PRECIPITATION TEST FOR SYPHILIS.

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IN a previous paper published¹ by one of us (C. Y. W.), the results of the precipitation test for syphilis on 200 serums were recorded. We have now applied the test to the serums of 200 further cases, using here, as before, the Wassermann reaction (W.R.) as control. Without exception, the results of the test were read before the controls were known or the clinical notes of the cases consulted. Any preconceived idea as to the nature of the cases or the development of the W.R. controls which might have prejudiced the results can therefore be ruled out. Excepting for one or two modifications, the technique

followed here is precisely the same as that introduced in the previous investigation already published. Briefly stated, it is as follows.

Technique.

Antigen.—One part by volume of an alcoholic extract of heart (human heart 1 part, alcohol 3 parts; contact for three days at room temperature) is floated on 9 parts of saline in a tube kept at upright position. At the end of a quarter of an hour the tube, held at a slanting angle, is slowly rotated, the rotation to be continued for a quarter of an hour. The aim of the procedure is to obtain a *maximum turbidity of the fluid within the time stated*. As the result of further investigation we find that this diluted antigen should be used fresh, or within 24 hours, otherwise it tends to lose its efficiency. The undiluted alcoholic extract keeps well for many months, and in our experience for at least a year.

Tested Serum.—This is heated on the day of the test for 20 minutes at 55° C. in a water-bath. If the amount of serum available is small (say 1 or 2 drops) it should be diluted previous to inactivation.

Procedure of Test.—One tube, instead of two, is now used for each serum. To the tube, with a Wright's pipette, measure 5 drops of saline and 1 drop of the heated serum. If this had already been diluted to the required strength (1 in 6) before heating no saline is here added. Using the same pipette, place 6 drops of the prepared antigen. This gives a final dilution of about 1 in 10, allowance being made for the smaller volume of the antigen as delivered in drops. The tube is shaken and incubated at 37° C. overnight.

Interpretation of Results.—When the reading is taken the tube should be gently shaken up several times. A *positive* serum is signified by a distinct precipitation in the tube, with or without complete clearing of the fluid. The precipitate is fine and granular, and visible to the unaided eye. A *negative* serum is denoted by absence of precipitation, a few flakes floating in the fluid being disregarded.

Results.

A summarised result of the 200 specimens is given in Table I.

TABLE I.

	Total.	W.R. +	Pp.T. +
Clinically syphilitic—			
Primary (chancres)	16	12	16
Secondary	45	44	45
Tertiary	16	7	9
Treated	15	6	9
Clinically non-syphilitic	108	5	5
Total	200	74	84

For the W.R. control a deviation of three or more doses of complement over that of the control tubes was accepted as indicating a positive reaction. It will be observed that there are ten disagreements in the series, in all of which the reaction was positive with the precipitation test (Pp.T.) and negative with the W.R. The clinical history of these cases shows that four were chancres of five, three, two, and two weeks'

TABLE II.

	W.R. + Pp.T. +	W.R. - Pp.T. -	W.R. - Pp.T. +	W.R. + Pp.T. -
Total (First series ..	76	119	4	1
400 (Second series ..	74	116	10	0
	150	235	14	1
	96 per cent.		4 per cent.	

standing respectively, one was condyloma in a congenital syphilitic child, one general paralysis of the insane, one locomotor ataxia, and three were treated cases. In order to furnish sufficient data to justify an opinion on the merit of the test we have combined the results of the first and this (second) series of investigations in Table II.

¹ THE LANCET, 1922, i., 274.

The discrepancy between the two methods in the combined series therefore happened in 15 out of the 400 cases examined (4 per cent.). Ten of these 15 discrepancies have already been referred to and explained above. The remaining 5 belonging to the first series consist of 3 syphilitic and treated cases and 2 without clinical history.

Conclusions.

1. The test has been practised on the serums from 400 cases, and was controlled throughout by the W.R. An agreement with the W.R. was found in 96 per cent. of the serums.

2. Disagreements were shown in 15 specimens (4 per cent.), which comprise 13 clinically syphilitic cases and 2 unknown cases. Of the former, in every instance the reaction was positive with the precipitation test, but negative with the W.R. The latter consist of one positive and one negative W.R.

3. The findings would warrant the conclusion that the precipitation test as formulated above is as accurate as, and, in some cases of early and late syphilitic manifestations, even more so than the W.R. Further, the test is simple in application and involves the use of a minimum amount of serum, such as can readily be obtained from the finger.

We wish to record our indebtedness to Dr. Yeoh for providing us with some of the serums.

A CASE OF CHLOROMA.

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The following rare case of chloroma occurred in a boy aged 7 years, who was admitted to the Manchester Children's Hospital on Sept. 22nd, 1922, with the history that his eyes had been getting prominent for about a month. The previous history was good and he was a well-grown boy. There was a family history of tuberculosis.

Condition on Examination.—On admission to hospital there was a marked prominence of both eyes and a swelling about the size of a large plum over each temporal fossa. The boy appeared quite comfortable with the exception of headaches at times. There was no vomiting and his sight was good. The heart, lungs, abdomen, and urine were normal. The skin showed some bronzing for which we could not account. The exophthalmos was equal on both sides and so marked that a large amount of conjunctiva could be seen over the iris. There was no inflammation in either eye, though the eyelids could be closed only with difficulty. The tumour growth in each temporal fossa was hard and gradually lopped away to the surrounding parts. The patient was very prostrate and pallid.

Blood Examination.—The clinical laboratory report on the state of the blood on the 25th was as follows: Red corpuscles, 992,000 per c.mm.; white corpuscles, 5100 per c.mm.; haemoglobin, 50 per cent. The red cells stained faintly but were fairly normal as regards form and size. No nucleated or other abnormal forms were seen. A differential count of the leucocytes gave the following results: Polymorphonuclear cells, 27 per cent.; lymphocytes, 67 per cent.; large mononuclear cells, 5 per cent.; eosinophil cells, 1 per cent. No abnormal leucocytes were found.

Course of Case.—After admission to hospital all the symptoms became gradually worse, the eyes more prominent, the tumour masses larger, and he died two weeks later, on Oct. 7th, after an illness which lasted only six weeks. A week before death the eyeballs became greenish and inflamed, and the lids could not be closed. Headache was a prominent feature towards the end. The temperature on admission was 100° F., and rose to 105° on the day before death.

Post Mortem.—The body weighed 39 lb. There was some brownish-yellow diffuse pigmentation of the skin of the trunk, lower third of the abdomen, and inner side of the thighs. The external characters of the tumour are shown in the photograph. No other growths, enlarged glands, or bone

lesions were found. The tonsils were not enlarged. Heart normal, weight 115 g. Lungs, weight 230 and 210 g. There were some petechial hæmorrhages in the pleura covering the apex of the right lung, and both lungs contained scattered hard nodules about the size of a pea. The bronchial glands were enlarged and pigmented. There was a partly calcified caseous gland the size of a cherry-stone at the bifurcation of the trachea, and a completely caseous gland at the root of the right lung. Both lungs showed extensive bronchopneumonic patches. Stomach and intestines normal; no enlarged mesenteric glands or other tuberculous lesions. Liver, weight 730 g.; it was rather pale and contained some minute white rounded nodules. Spleen, weight 87 g.; rather soft and dark. Adrenals: The left adrenal contained a caseating tuberculous focus about the size of a pea.

The tumour on each side was situated beneath the temporal muscle, growing from the fascia on its under surface and infiltrating the muscle. It extended beneath the zygoma, into the orbits and over the superior maxilla. The bony structures were not invaded. The growths in the orbits surrounded and compressed the eyeballs, but these were not invaded. The lacrimal glands were both infiltrated with



Patient's appearance on admission to hospital.

new growth. The tumour was firm in consistence, softer in the orbit than elsewhere. It had a peculiar greenish-yellow colour and exuded much greenish serum on section. The colour faded on exposure to air and became more yellowish. It was recognisable after 24 hours, and was not revived by peroxide of hydrogen. The formalin in which some portions of tumour had been kept retained a yellow colour tinged greenish for some weeks.

Skull and brain normal; there were no intracranial growths. Thymus and thyroid normal.

Microscopical Findings.—Material was hardened in formalin and sectioned by freezing in gum. The stains used were hæmatestin-rubin and other simple stains, including those of Leishman and Giemsa. Sections from various parts of the tumour were tested with α -naphthol and dimethylparaphenylenediamine.

The tumour had the structure of a round-celled sarcoma. The cells were rounded or polygonal with a clear fairly abundant protoplasm and rounded nuclei. They were closely packed, with very little intercellular matrix, and often arranged in columns. Blood-vessels were very scanty and the amount of supporting connective-tissue stroma was small. The cells did not contain granules staining by Leishman, Giemsa, or eosin, and showed no evidence of the presence of ferments giving the indo-phenol reaction. The nodules in the lung, liver, and adrenal were tuberculous. No secondary growths were found in any of the organs and there was no diffuse leucocytic infiltration. The changes in the spleen require further investigation, but the chief condition found was an increase in the amount of pulp tissue and evidence of active hæmolysis. The red bone marrow showed no conspicuous change, but only the sternum could be examined.

The case resembles previously reported cases of chloroma but differs in some respects. The colour of the growth was not absolutely characteristic. Apart from the changes in the spleen, it affords no evidence in favour of the view that chloroma is allied to the leukæmias. Possibly the association of tuberculosis of the lungs and bronchial glands followed by a miliary tuberculosis modified the progress of the disease and the changes in the organs.

THE FATALITY OF PUERPERAL FEVER.

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WHILE examining the rates of fatality of child-bearing over a long series of years a doubt has arisen as to the value of the fatality of puerperal fever when calculated on the number of cases notified (as published in the annual returns of notifications) and the numbers of deaths (as given in the annual reports of the Registrar-General). This memorandum has been written in the hope that someone more versed in statistical methods may be induced to express an opinion on the question.

From the latest report of the Registrar-General, that for 1921, it appears that 2211 cases of puerperal fever were notified in England and Wales during that year and that 1171 deaths were assigned to "puerperal sepsis"—Rubric 146 of the International Code. Those figures yield a fatality rate of 52.9 per cent. As soon as any examination is made of the rates obtained in the subdivisions of the country, it is seen that the rate just quoted cannot be accepted at its face value. In Table I. the subdivisions used by the Registrar-General have been followed.

TABLE I.—*Puerperal Fever, 1921.*

	Notified cases.	Deaths.	Fatality per cent.	Notified cases.	Deaths.	Fatality per cent.
England	2094	1060	50.6			
Wales	117	111	94.9			
London	353	142	40.2			
<i>England, excluding London.</i>						
<i>Wales.</i>						
Aggregates of—						
County boroughs	968	440	45.4	19	18	94.7
Administrative counties ..	773	478	60.6	92	93	94.9
Urban districts	534	303	56.7	67	59	88.0
Rural districts	239	175	73.2	31	34	110.0

Variation of Fatality Rate.

A fatality rate varying in one year from 40.2 to 110 per cent. invites inquiry as to the causes of such variation and offer for solution a problem as to the true value of the rate. The hypothetical rate (110 per cent.) observed in the aggregate of rural districts in Wales hints at one explanation of the wide variation—viz., incomplete notification.

It appears to be reasonable to assume that notification will be more complete within the County of London than in any other part of the country. For the whole country the rate in 1921 was 40.2 per cent., but on examining the rates in the five groups of cities and boroughs which are included within the county, the rate varies from 28.5 (Central) to 48.6 (North) as shown in Table II. In other words, the variation ranges from 29 per cent. below to 21 per cent. above the rate for the county.

TABLE II.—*Puerperal Fever in London, 1921.*

	Notified cases.	Deaths.	Fatality per cent.	Index numbers.
West	78	24	30.8	766
North	72	35	48.6	1206
Central	7	2	28.5	709
East	59	20	33.9	818
South	137	61	44.5	1007
London	353	142	40.2	1000

On taking out the rates for the individual cities and boroughs, still greater variations are found. As regards London, in the West districts the maximum rate was 62.5 (Kensington) and the minimum 14.2 (Chelsea)—a range of from 103 per cent. above to 54 per cent. below the rate for the group. In the North the maximum was 100 per cent. (Hampstead)

and the minimum zero (Stoke Newington)—a range of from 106 per cent. above to 100 below the rate for the group. In the Central, the maximum was 100 (Holborn) and the minimum zero (City of London)—a range of from 251 per cent. above to 100 below the rate for the group. In the East, the maximum was 38.0 (Stepney) and the minimum 20.0 (Bethnal Green)—a range of from 12 per cent. above to 41 below the rate for the group. In the South, the maximum was 78.5 (Camberwell) and the minimum 22.2 (Lewisham)—a range of from 31 per cent. above to 50 below the rate for the group.

Setting aside the districts in which no death from puerperal sepsis was recorded during the year, the fatality, as obtained from the recorded numbers of notified cases and deaths, shows an amplitude of variation from 100 per cent. to 14.2—that amplitude occurring in an area in which it has been assumed that notification is most complete.

Outside the County of London there are 82 county boroughs (78 in England and 4 in Wales) and 61 (each) aggregates (or groups) of urban and rural districts (48 in England and 13 in Wales). Of the 204 areas, or groups of areas, 93 present special features.

In 10—2 C.B. (England), 6 A.U.D. (England, 2; Wales, 4), 2 A.R.D. (England)—there were 16 deaths and no notified cases.
In 23—11 C.B. (England, 10; Wales, 1), 3 A.U.D. (England, 2; Wales, 1), 14 A.R.D. (England, 11; Wales, 3)—the (114) deaths exceeded the (63) notifications.
In 28—13 C.B. (England, 11; Wales, 2), 5 A.U.D. (England), 10 A.R.D. (England, 6; Wales, 4)—the (180) deaths equalled the (180) notifications.
In 27—3 C.B. (England), 14 A.U.D. (England, 11; Wales, 3), 10 A.R.D. (England, 7; Wales, 3)—there were no deaths and no notifications.
C.B., County boroughs. A.U.D., Aggregate urban districts. A.R.D., Aggregate rural districts.

After elimination of the areas, and groups of areas, in the first two of the above four categories, the rates set out in Table III. are obtained.

TABLE III.

Aggregates of—	England, excluding London.			Wales.		
	Notified cases.	Deaths.	Fatality per cent.	Notified cases.	Deaths.	Fatality per cent.
County boroughs	944	396	41.9	18	15	83.3
Administrative counties ..	743	417	56.1	90	71	78.8
Urban districts	530	295	55.6	65	51	78.4
Rural districts	213	122	57.2	25	20	80.0
Totals	1687	813	48.1	108	86	79.6
England and Wales: fatality, 47.4%.						

In 66 county boroughs, 35 aggregates of urban districts and 38 of rural, the deaths assigned by the Registrar-General to puerperal sepsis were, in each area or group of areas, *not in excess* of the notified cases of puerperal fever. The observed fatalities in the boroughs and aggregates have been tabulated at 10 per cent. intervals. (Table IV.)

TABLE IV.—*Puerperal Fever, 1921.*
England and Wales, excluding London.

Fatality rate per cent.	County boroughs.	Aggregates of—		All areas.
		Urban districts.	Rural districts.	
10—	4	—	2	6
20—	4 (1)	3	1	8 (1)
30—	9	2 (1)	4	15 (1)
40—	10	3	—	13
50—	11	9 (2)	9 (2)	29 (4)
60—	8	7	3 (1)	18 (1)
70—	6	4	5	15
80—	1	4 (1)	1	6 (1)
90—	—	1 (1)	—	1 (1)
100—	13 (2)	5	10 (4)	28 (6)

The figures in parentheses are those for Wales and are included in the figures preceding them.

Regarding Table IV. as an ordinary frequency distribution, the following means have been obtained:

	Per cent.
County boroughs.. ..	52.5
Aggregates of urban districts ..	60.5
Aggregates of rural districts ..	53.2
England and Wales	58.5
England	57.4
Wales	72.0

It appears to be almost hopeless to arrive at a conclusion as to the true fatality rate from the foregoing calculations. All that can be written is that the rates obtained raise suspicions that the notification of puerperal fever is very incomplete, and that in assigning deaths to puerperal sepsis the Registrar-General follows a rule differing from that adopted by the profession in diagnosing the disease. It has long been recognised that a definition of "puerperal fever" is wanted for the purposes of notification.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF LARYNGOLOGY: SUMMER MEETING.

THE summer meeting was held at the Manchester Royal Infirmary on June 15th and 16th, with Mr. C. A. PARKER, the President, in the chair.

The first part of the programme was devoted to the reading and discussion of papers.

Mr. DOUGLAS GUTHRIE (Edinburgh) read a paper on

Chronic Hyperplasia of the Upper Jaw.

He said that this disease, although rare, might furnish a clue to the solution of some of the problems of bone pathology. The microscopic appearance closely resembled otosclerosis, although the two diseases perhaps differed widely in their pathogenesis. Mr. Guthrie described two cases, of a boy aged 5 and of a girl aged 16, in both of whom the bony enlargement of the maxilla was unaccompanied by pain or other symptoms. Lantern slides were shown to illustrate three specimens from the Museum of the Royal College of Surgeons of England, including an upper jaw excised by Lord Lister. The relationship of the disease to leontiasis ossea, to unilateral hypertrophy, and to other osseous tumours was also discussed and illustrated.

Mr. T. B. LAYTON (London) said there were many types of this disease, some of which were typical examples of leontiasis ossea. It was essential to separate the types, but he considered that some microbic toxin was responsible and reminded the section that a similar disease occurred in the anthropoid ape and in the chimpanzee.

Mr. F. H. WESTMACOTT (Manchester), referring to his work on this subject, pointed out that the bony swelling involved the canine fossa and originated from the alveolus. The bony changes were always limited by the orbital plate, and a diminutive antrum of Highmore was present. He regarded the condition as a reversion to an embryonic type, a reconstruction of the bone, and in no way associated with infection.

Mr. J. ARNOLD JONES (Manchester), from a series of 53 cases, offered some

Clinical Observations on the Lingual Tonsil.

He divided the symptoms into three groups: (1) Vague aches, pains in the throat; (2) paroxysmal cough, and (3) dysphagia. The appearance of the lingual tonsil varied from a granular or varicose condition to definite gross hypertrophy. Discussing treatment, Mr. Jones referred to the dangers of removal of hypertrophies with the guillotine, and preferred painting the tonsil two or three times a week with a solution of 1 in 40 silver nitrate, or making linear cauterisations with the electric cautery. As to the results of treatment, out of 41 replies 11 reported

cures, 11 great improvement, 15 improvement, and 4 no improvement.

The PRESIDENT and several members took part in the discussion, and it was generally considered that in the majority of cases the importance of the lingual tonsil in the production of symptoms was overestimated.—Mr. JONES, however, maintained that the lingual tonsil was often overlooked, and that the treatment which he had outlined, simple as it was, was worthy of a more extended trial.

Dr. D. R. PATERSON (Cardiff) discussed the

Treatment of Large Foreign Bodies Impacted in the Gullet.

He pointed out that in the majority of cases such bodies were impacted in the cervical portion of the gullet. The difficulty of extraction per vias naturales was frequently enhanced by the septic nature of the foreign body, its jagged or pointed contour, and the length of time it had been present in the gullet. He insisted on the importance of a careful and studied survey of the case before adopting endo-oesophageal treatment. Reference was made to the extreme rapidity with which some foreign bodies induced ulceration of the oesophageal wall, the presence of a foetid odour or pyrexia being an indication for extreme caution during extraction. Any perforation, actual or suspected, of the oesophageal wall was an indication for an external oesophagotomy. Dr. Paterson invited opinions as to whether it was not sounder treatment to resort to the external operation in cases of difficult endo-oesophageal extractions or presence of sepsis, without actual perforation of the gullet wall.

Sir WILLIAM MILLIGAN advocated the use of the expanding oesophageal tube, and was of the opinion that an external operation should be performed if the point of the foreign body was deeply embedded in the oesophageal wall and difficult to extract.

Dr. WILLIAM HILL regarded foreign bodies with hooks or teeth impacted in the pharynx as an indication for the external operation.

Mr. MUSGRAVE WOODMAN (Birmingham) communicated a further study of the varieties of

Malignant Disease of the Nasal Accessory Sinuses.

with lantern demonstrations of microphotographs. He pointed out the necessity for acquaintance with the histology of the normal ethmoid, and considered that several sections of a tumour had to be made before a definite opinion as to its nature could be evolved. In conclusion he illustrated, by lantern demonstration, some further suggestions for the surgical treatment of this condition.

Mr. F. H. DIGGLE (Manchester) read a paper on Diseases of the Thyroid Gland in their Relation to Laryngology.

He discussed the incidence of laryngeal and tracheal complications in benign diseases of the thyroid gland, with special reference to vocal cord paralysis and tracheal compression. He stated that of 34 cases examined during the last 18 months 7 presented such complications. He considered, however, that this proportion was probably too high. Of the 34 cases examined 20 were simple parenchymatous goitres, 6 adeno-parenchymatous, 6 exophthalmic, and 2 cystic goitres. He had only seen two cases of vocal cord paralysis in the cases examined, one a functional adductor paresis in a case of exophthalmic goitre and the other a right abductor paralysis due to hæmorrhage into a cystic goitre. After referring to the incidence of laryngeal paralysis in retro-oesophageal or retro-sternal thyroid extensions, he pointed out that tracheal compression or distortion was a more frequent complication. Radiographs were shown of two cases, aged 17 and 15 years respectively, illustrating bilateral tracheal compression and the relief of such after partial thyroidectomy.

Mr. H. TILLEY referred to a recent case in which an extension of the thyroid gland had insinuated itself between the thyroid ala and the lateral laryngeal wall, producing a bulging inwards of one-half of the larynx.

At noon on June 16th more papers were read.

Mr. D. L. SEWELL (Manchester), in a paper on the *After-treatment of Empyema of the Maxillary Antrum (Denker's Operation)*,

discussed the relative advantages of Denker's operation. He preferred to fashion a nasal flap, and to turn it on the floor of the sinus, packing it down with a narrow strip of bismuth gauze. He left the buccal wound unsutured, and on the fourth day removed the gauze through the buccal opening. Concerning subsequent irrigation of the sinuses, Mr. Sewell was of the opinion that the best results were obtained if no such treatment was adopted and only simple gentle nasal douching employed on and after the seventh day. For cases with persistent discharge in spite of such treatment he discussed the advantages of irrigation with silver nitrate and colloidal silver preparations. He was of the opinion that too zealous treatment by irrigation frequently spoilt an operative result.

Mr. J. F. O'MALLEY traced the *Evolutionary Changes which the Nose Undergoes in the Vertebrata*.

Beginning with the lamprey and continuing through fishes, amphibia, reptiles, birds, and mammals to man, he traced the stages of the evolution of the nose with its accessory sinuses as present in man. Running parallel with the anatomical variations he demonstrated the physiological adaptations to origin, passing through the phases of a pure olfactory organ, then with powers related to assimilation and taste, and finally to that of a respiratory organ at first subsidiary to smell and then of equal importance.

Exhibitions of Cases and Demonstrations.

The afternoon of June 15th was devoted to the examination and discussion of several interesting clinical cases. The local members of the section, together with Mr. WOODMAN and Dr. DAVID THOMSON (Blackpool), had collected together a full and complete variety of cases which gave rise to instructive and useful discussion.

On the morning of June 16th Dr. P. WATSON-WILLIAMS (Bristol) demonstrated his technique and method of exploration of the nasal accessory sinuses.

Dr. IRWIN MOORE (London) demonstrated his method for the reduction or destruction of the hypertrophied or diseased tonsil by means of caustic soda and slaked lime (London paste).

An interesting demonstration of radiographs illustrating pharyngeal pouches, cardiospasm, and other lesions associated with the specialty were shown by Dr. MORRISON and his colleagues in the new X ray department of the Royal Infirmary.

Dr. A. BURROWS showed cases treated by radium, and demonstrated his methods of application in malignant diseases of the nose, pharynx, and larynx.

The annual dinner of the section was held at the Clarendon Club on June 15th, and the dinner, as well as the other meetings of the section, were voted most successful functions.

SECTION OF OPHTHALMOLOGY.

A MEETING of this section was held on June 8th, under the presidency of Mr. A. L. WHITEHEAD, when a number of cases were shown.

Macular Change with Tremor.

Mr. H. M. JOSEPH showed a case of progressive macular changes associated with tremor. The patient was a woman aged 34. Two and a half years ago she had tremor of the right hand, but no visual defect. When he saw her for the first time two years ago there were light spots about both maculae, and the corrected vision was 6/12. Since that date the spots had greatly increased in number. Vision had now fallen to 6/18, and the tremor was more marked and extensive. Wassermann was negative.

Mr. RAYNER D. BATTEN regarded the case as an adult instance of cerebro-macular disease. Probably the same toxin might be at work, producing different symptoms at different age periods. Infantile, juvenile,

and senile types were now recognised, and the present case seemed to supply the missing link, the adult type. He entered into the reasons he held that view, and showed slides of various cases he knew of. —Mr. F. A. JULER referred to a case under Mr. Leslie Paton, a boy, aged 18, which Mr. Paton diagnosed as cerebro-macular degeneration, and said he (Mr. Paton) regarded it as a connecting link between amaurotic family idiocy and later cases of cerebro-macular degeneration. —Dr. GORDON HOLMES said he was familiar with this tremor since the epidemics of lethargic encephalitis. He did not suggest that this patient's condition was a sequel to lethargic encephalitis, but he thought the area of brain affected agreed in the two conditions. The most important pathological lesion in these cases was disease in the substantia nigra and in the neighbourhood of the mesencephalic nuclei; it seemed to be a primary degeneration of certain portions of the grey matter of the brain. —The PRESIDENT said that in the cases of encephalitis lethargica he saw he had not noted any fundus changes, a curious fact if the basal ganglia were affected.

Familial Nodular and Reticular Keratitis.

Mr. MONTAGUE HINE read a paper on this subject, based on three cases shown. This family, he said, helped to demonstrate a close connexion between the two conditions which did not appear so obvious when seeing individual cases. Mr. Basil Graves, who examined these three cases with the corneal microscope, aptly described the appearance seen in the two younger patients as a "fine sheeny speckling," and suggested that the tissue might be impregnated with a fine translucent granular deposit, which might have a refractive index different from that of the cornea. The girl, aged 10, gave a history of slight headache, but no intolerance of light. Right vision was 6/12, left 6/9. In her the opacity consisted of a number of fine lines, many of which were seen to be composed of tiny dots; but the lines here did not form a meshwork, but remained separated and uncrossed. One line suggested an obliterated vessel, resulting from previous inflammation. In the left cornea there was a combination of two of the linear opacities with several of the small rings, similar to those in her brother. The mother, aged 36, said that her eyes had worried her since infancy; she had not had them examined before February last, when she came to be tested for glasses. Right vision was 6/18, left 6/12. The central area of the cornea was seen to be studded with numerous, rather closely-set greyish-white opacities, some in the form of rings, others nodular, while in places the nodules became confluent. The periphery of the cornea was clear in each eye. The boy, aged 14, gave a history of severe headaches and intolerance of light since infancy. His cornea showed very similar changes to those seen in his mother. There was one child whose eyes were normal. In all the cases the Wassermann was negative, but the maternal grandfather was said to have had syphilis.

Mr. H. NEAME spoke of a case under Mr. J. H. Fisher's care who had lines of opacity in one eye, and nodules in the other; the lines appeared to be at about the middle of the substantia propria.

Tuberculous Conjunctivitis.

Mr. R. L. REA showed a young woman, aged 23, with tuberculous conjunctivitis, in the form of ulcerative patches on the lids of both eyes. He had arranged for her to be sent to Leysin, in Switzerland, to have the direct sunlight treatment, from which he had seen there very good results. He hoped to show her again after she had received that treatment.

The Embryology of Congenital Crescents.

Miss IDA C. MANN read a paper on some suggestions on the embryology of congenital crescents, which was supplemented by some excellent micro-photographs and drawings shown by the epidiascope. The main thesis is as follows: The group of cases under consideration are characterised by the fact that they

are congenital, stationary, not necessarily associated with any one error of refraction, and situated, in 70 per cent. of the cases, below the disc. There is, apparently, some factor which determines the greater proportion of inferior crescents, which must be sought in the normal development of the disc, since an abnormality is more likely to be associated with a normally existing embryonic structure than it is to arise *de novo* as a pure aberrance. The embryonic structure in this case is the choroidal fissure. The presence of congenital crescents in other situations does not detract from the fact that the choroidal fissure is the determining factor in the inferior type. The presence of the fissure will merely account for the preponderance of this type, since the essential condition for the formation of a crescent is that the pigmented outer layer of the optic cup should not reach quite up to the insertion of the optic stalk. The presence of the fissure merely allows of this occurring more easily below the disc than elsewhere. From the illustrations shown it can be seen that the essential difference from the normal consists of the failure of the pigment epithelium and nuclear layers of the retina to reach the edge of the optic disc in its lower part; hence there is a small area below the disc in which all the elements of the retina except the nerve fibre layer are absent, so that this layer is separated from the sclerotic only by a very thin extension of the choroid. Developmentally it has been shown that eversion of the unpigmented layer of the optic cup normally takes place in the upper end of the choroidal fissure. This is seen in a large number of vertebrates. In some animals, including man, the small everted portion of the inner layer loses its connexion with the rest of the inner layer and disappears, but in some other types (birds) the connexion is retained and nerve fibres grow into the everted projection. If in man the everted portion developed aberrantly and retained its connexion with the inner layer, a condition resembling that normally present in birds might result. Such a condition is present in a congenital inferior crescent, which bears a striking resemblance to the structure of the lower part of the disc of the normal bird. It may be said that congenital crescents in any situation are due to the failure of the pigment epithelium to reach the site of implantation of the optic stalk. This failure may occur anywhere, since aberrant differentiation of the various parts of the secondary optic vesicle is known to occur. It is, however, much more likely to occur below the disc than elsewhere, since it is normal here at one stage of development in man. Hence the greater frequency of inferior crescents, which can be looked on as developmentally homologous with the cauda of birds, the architectural basis of the cauda being present, though small, in the normal human embryo. The failure of the choroid is directly correlated with the absence of the pigmented epithelium, and the occasional failure of the sclera has its parallel in the retardation of condensation along the fissure during development.

The PRESIDENT complimented Miss Mann on her exposition and the beauty of her slides.—Sir WILLIAM LISTER argued that the inferior crescent was a retraction crescent, similar to the ordinary retraction crescent of myopia occurring on the macular side.—Sir JOHN PARSONS agreed with Miss Mann's view. In many cases the condition was associated with failure in closure of the choroidal fissure. With regard to the myopic so-called retraction crescent—a term he did not like—he thought this was probably an atypical coloboma, and that it had no relation to the stretching of the walls of the globe associated with myopia.

Miss MANN replied that the presence of staphyloma below the disc could also be explained as part of the retardation of the sclerotic condensation along the lines of the fissure. She agreed that myopic crescents also had a congenital explanation, though in them some pathological process was superimposed.

Mr. P. DOYNE read a brief paper on the Tournay reaction, and it was discussed by Mr. J. H. FISHER and Mr. RAYNER BATTEN.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of this Society was held at the Norfolk and Norwich Hospital on June 5th, with Dr. ARTHUR CROOK, the President, in the chair.

Insulin in Diabetes.

Dr. H. J. STARLING brought forward two cases of diabetes to illustrate the benefits and limitations of insulin. Case 1 was a girl of 18 who was first admitted to hospital in October, 1919, with a long previous history of thirst and loss of weight. She had 32 gr. of sugar per oz. of urine with a total output in one day of 2030 gr. Starvation for five days made the urine sugar-free. This case for three and a half years had been kept on a very low carbohydrate diet, which she only varied occasionally when temptation overtook her. She had steadily increased in weight, had always been of a healthy colour, and had managed to establish her menstrual periods lately. Case 2 was a man, aged 30, admitted to hospital on April 16th, 1921, with high sugar excretion and marked acetonuria. Was kept in 12 months. Starvation for varying periods of 2-5 days made the urine sugar-free, but after 2-4 days of meat, eggs, and 10 oz. of 5 per cent. vegetables, sugar always reappeared, and his weight kept stationary. He was readmitted in June, 1922, in a condition bordering on coma; acetonuria and sugar excretion very high. As starvation did not result in abolition of sugar it was given up, and he was put on a diet containing 51 g. of carbohydrate and of 1435 calories per day. His daily output of sugar for the past six months averaged 784 gr. (46 g.) and he therefore retained a daily average of 77 gr. (5 g.) of carbohydrate. Insulin—10 units—was given on May 7th, and one slice of bread was given in addition to his normal diet, but the sugar excretion went up to 1560 gr. (93 g.). The daily amount of insulin was then increased, until for the past three days he had been having 10 units at 6 A.M., 20 units at 12, and 10 units at 6 P.M. = 40 units a day. For the past 48 hours he had been sugar-free, except for the specimens tested at 6 A.M. and 8 A.M. That dose of insulin was therefore about correct to enable him to retain the present intake of carbohydrate. The blood-sugar before insulin was given was 0.56 per cent., afterwards only reduced to 0.52.

Dr. Starling considered that insulin was of immense value in diabetic coma, in which condition 80-100 units should be given with large doses of glucose, preferably intravenously. He stressed the importance of frequent estimations of the blood-sugar. If that was not done there was only one other factor by which the dose of insulin might be graded. In order to prevent an overdose being given it was necessary that a small amount of sugar should always be present in the urine, which necessitated the blood-sugar remaining permanently at a higher level than that which the pancreatic cells could deal with. That practice was diametrically opposed to Allen's treatment, which aimed at keeping the urine sugar-free, and thus giving the cells of the islands of Langerhans a chance of recovering their proper function. When the sugar excretion could be controlled by dieting, insulin was not required, but its use was essential in a class of cases in which sugar was always present in the urine in spite of the most careful dieting. The highest percentage of blood-sugar occurred between 6 A.M. and mid-day, and thus the larger doses of insulin should be given in the morning. It was, however, dangerous to give the insulin over-night, as someone had suggested, as with no meal to follow symptoms of an over-dose might come on during sleep and be far advanced before any signs of it were observed. At present insulin therapy was in its infancy and the drug should not be given indiscriminately, or by anyone not fully conversant with its effects.

Exhibition of Cases and Specimens.

Mr. E. W. EVERETT showed four cases and specimens, including a boy on whom he had operated

for lateral sinus thrombosis. On March 17th he had done a radical mastoid operation. On the 28th the patient had a rigor, after which rigors occurred every second, third, or fourth day. The patient also had headache and a septic temperature, but no vomiting. After a very severe rigor on April 13th the boy was operated on; the thrombosis, which did not extend into the jugular vein, was thoroughly cleaned out and packed; after the operator and his assistant had changed their coats and gloves the jugular vein was tied above the origin of the facial vein. The patient made a good recovery.—Sir H. BALLANCE congratulated Mr. Everett on the result of his operation. In his opinion better drainage was obtained in these cases by ligaturing the jugular vein below the origin of the facial, and leaving the upper end of the jugular open for drainage.

Mr. Everett's second case was that of a woman who had obstruction to labour at term by a right ovarian fibroid which was impacted behind the uterus. Cæsarean section was done, and the tumour removed with great difficulty. The third specimen was a colossal ovarian tumour blocking up the whole pelvis, in a woman about eight months' pregnant. She was operated on before labour commenced, and the whole tumour and uterus, together weighing 38 lb., removed by Cæsarean section. The child was extracted alive, but died in half an hour. The operation was followed by severe secondary hæmorrhage. As no bleeding-point could be found she was treated by intravenous injection of gum—6 per cent.—and made a good recovery. Mr. Everett also showed a stone impacted at the vesical end of the ureter, removed by suprapubic cystotomy.

A Case of Blastomycosis.

Dr. F. SUGDEN showed a case of blastomycosis in a man, aged about 25, which had been modified by treatment. The eruption was on the neck and the left hand corner of the mouth, and it at first sight looked like impetigo contagiosa. He came to the conclusion, however, that it was a fungus growth, and that the infection was probably derived from horses. After two examinations at the laboratory, the diagnosis of blastomycosis was confirmed. Treatment had been removal by a sharp spoon of the papillomatous growth at the margin of the eruption, followed by starch poultices and later the application of a modification of Dakin's solution. There was considerable improvement, though not a permanent cure.

Dr. S. H. LONG showed a case of pseudo-hypertrophic paralysis in a boy of 8, who exhibited all the typical symptoms. Treatment by massage was of no avail in this case.

DALRYMPLE HOUSE, RICKMANSWORTH.—The report of Dr. F. S. D. Hogg, the superintendent of Dalrymple House, Rickmansworth (Homes for Inebriates Association), which deals with the year ending Jan. 31st, 1923, brief though it is, contains many points of interest to the medical profession. Owing, no doubt, to the financial and mental strain of the war, and the resulting sequelæ, there has been a notable increase in the number of patients who ascribe their alcohol habit to business and domestic worries, and some 33 per cent. of the inmates allege these as a primary cause. During the year 79 patients were admitted, nine of whom were drug addicts, and the remainder subjects of alcoholic excess. The private patients numbered 55 and those treated under the Inebriates Act 24. The ages of the patients ranged from 21 to 77, but Dr. Hogg points out that persons over 70 are rarely admitted as it is then found usually too late to hope for improvement. He states, however, that of three patients admitted during the past 21 years over that age, one continued to do well till the time of his death, and another, now aged 84, has not touched drink or drugs during the last 12 years. Very young patients also do not prove satisfactory, as they resent control and do not realise the need for any alteration in their habits. The average length of residence for treatment, taking the figures over a number of years, has been 20½ weeks, but in some cases a few days' residence has resulted in marked improvement, when discharge has followed. Recent years have seen an increased number of methylated spirit drinkers, and the suggestion is made that if methylated spirit were sold to the public "doctored" with tartar emetic the consumption of the liquid as a stimulant would be stopped.

Reviews and Notices of Books.

PRACTICAL MIDWIFERY.

By GIBBON FITZGIBBON, M.D., F.R.C.P.I., Master, Rotunda Hospital. London: J. and A. Churchill. 1923. With 175 illustrations. Pp. 534. 16s.

THE midwifery practice followed at the Rotunda Hospital is held in such high esteem that a text-book by the Master may well be regarded as authoritative. It is unnecessary to dwell on the sound teaching or to stress the particular respects in which the technique of the Dublin school differs from current practice in this country. Suffice it to say that the book is an excellent text-book, well planned and well stuffed with clear information. There are a few specially interesting ideas, notably in the section dealing with the difficult subject of retraction of the uterine muscle fibre. Dr. FitzGibbon considers that retraction follows from reduction in the intra-uterine tension, while contraction naturally follows uterine stimulation. Retraction therefore does not occur until contraction has produced an alteration in the intra-uterine tension sufficient to reduce it below the level required to maintain equilibrium. The author strongly recommends and describes clearly the many advantages of rectal examination during labour in preference to vaginal examinations. Schultze's method of detachment of the placenta is regarded as the normal and Matthews Duncan's is described as an abnormal method; the teaching that the former only occurs when the placenta is attached at or near the fundus of the uterus is not accorded any support. The statement that when the placenta is detached according to the mechanism outlined by Matthews Duncan the membranes are often torn and retained will hardly meet with acceptance on the part of most obstetricians. The need for a post-partum vaginal examination is stressed. The description of plugging the vagina is, as might be expected, very good; but it is perhaps unfortunate that the author should illustrate it being employed for central placenta prævia, since many authorities disapprove of its use for this condition. The account of the toxæmia of pregnancy is particularly clear; the author shows wisdom in making no attempt to include all the various theories of origin, for many of which there is in reality not much foundation.

The detailed description of the treatment adopted for eclampsia at the Rotunda Hospital will be read with much interest, since at the present time the non-operative treatment of this complication of labour is being widely advocated. It is instructive to see how strongly Cæsarean section, with its mortality of some 32 per cent., as a method of healing eclampsia is condemned. The Rotunda method, which includes gastric lavage, purgation, colon lavage, submammary infusion, poultices to the loins, and occasionally venesection or intravenous infusion has been carried out in some 214 cases with a total of 19 deaths, a death-rate of under 9 per cent. Under the heading of induction of premature labour, Dr. FitzGibbon describes the method of using a No. 20-24 soft rubber stomach-tube, which is pushed through the cervix and allowed to coil itself up below the presenting part, the whole of the tube being introduced into the lower uterine segment. The advantages claimed for this method are the ease with which it can be carried out, the certainty with which the tube can be sterilised by boiling, the minimum of manipulation, and the fact that the whole tube is contained within the uterus and nothing projects through the cervix into the vagina.

We have said enough to show that this book contains much of interest. The illustrations are good, there is a full index, and it may certainly be read by the student and practitioner as a safe guide to the best practice in midwifery.

DISEASES OF THE EAR.

A Practical Handbook for Students. By Sir WILLIAM MILLIGAN, M.D., Aurist and Laryngologist to the Royal Infirmary, Manchester; and WYATT WINGRAVE, M.D., Pathologist to the Central London Throat and Ear Hospital. London: William Heinemann. 1923. Pp. 191. 12s. 6d.

THIS handbook supplies sound instruction in a concise form on diseases of the ear, and may be read by the student as a reliable and authoritative introduction to otology. In compressing a large subject into the space of a small handbook, it is naturally difficult to decide what to omit, what to mention briefly, and what to describe at greater length. The authors do not appear to have solved the problem with entire success in this case; for, of the 178 pages of text, page 109 is reached before we have passed the external auditory meatus and arrive at diseases of the drum. Much of the detail about examination of the buccal cavity, pharynx, nose and naso-pharynx might well have been omitted; general practitioners have no occasion to use a palate retractor or the Weber-Liel tympanic tube. A number of pages are occupied by diseases of the auricle, many of which are very rare and of more interest to the dermatologist than to the otologist. By careful selection of matter more space could have been found for the all-important subject of otitis media in its various forms. Despite this lack of balance, the book has many merits. It is written in an interesting style, and the illustrations are plentiful and good; it should prove useful to the senior student, for whom it is intended, and we hope, with the authors, that it may stimulate a desire for increased information.

COLLOIDS.

Théorie et pratique des colloïdes en biologie et en médecine. By W. KOPACZEWSKI, Docteur en Médecine, Docteur ès-Sciences, Professeur à l'Institut des Hautes-Études de Belgique. Paris: Vigot Frères. 1923. Pp. 308. Fr. 25.

THIS excellent and original book from the pen of one who has devoted much labour and thought to the subject of colloid chemistry will be welcomed. It is up to date throughout and the practical portions comprise much not generally included in works on practical colloid chemistry; in fact, it deals in a clear, though brief, manner with all the ordinary technique of physical chemistry which is likely to be involved in investigations on colloids; such methods as electric conductivity, cryoscopy, and concentration cells are fully treated. The chapters dealing with electric transport, viscosity, surface tension, nephelometry, and ultramicroscopy will be found to contain methods not given elsewhere. The whole work, which is well illustrated and provided with an excellent bibliography, should fill the need which is felt in France for such a book, and will assuredly find its way into the libraries of all in this country who are interested in the application to medical problems of the findings of colloid chemistry, for they could not have a better guide.

Klinische Kolloidchemie. By Dr. ERNST JOËL. Berlin, Dresden, and Leipzig: Th. Steinkopff. 1923. Pp. 124. 2s. 2d.

A SERIES of nine lectures dealing with applications of physical, and especially colloid, chemistry to medical practice. Though academic in form, they provide interesting reading for those sufficiently familiar with the language and with the elements of physical chemistry; if we may judge from the contents of these lectures, the average German clinician is more given to theorize than the English practitioner. Theories of colloid swelling play a large part in some of the hypotheses which are advanced in these lectures. It is certainly interesting, even if we are not inclined to follow all the author's reasoning, to see how extensive may be the applications of colloid and physical chemistry.

TUBERCULOSIS.

Environment and Resistance in Tuberculosis. By ALLEN K. KRAUSE, Associate Professor in Medicine, Johns Hopkins University; Director, Dows Tuberculosis Research Fund; Lecturer, Trudeau School of Tuberculosis, &c. Baltimore: Williams and Wilkins Company. 1923. Pp. 137. \$1.60.

THE author, who is editor of the *American Review of Tuberculosis*, has compressed into two chapters much thought, and suggestions which provoke thought, on the subjects of environment and resistance in relation to tuberculosis. In the chapter on Environment doubts are cast on the general validity of the Andvord-Römer teaching that practically all the tuberculosis of adult life can be traced to auto-infection resulting from tuberculosis contracted in childhood. The author cannot help believing that the everyday life of man provides conditions that make for a not inconsiderable number of tuberculous re-infections from without, in which the time and quantity of re-infection may be so ordered as to cause a break-down. With regard to heredity, it is pointed out that nervous instability and over-irritability are certainly transmitted from one generation to another, and the suggestion is made that nervous irritability, which must regulate cellular activity in general, may ultimately be found to influence the origin and development of infections in a marked degree. In the chapter on Resistance the author ventures the opinion that allergy undoubtedly furnishes the key which bids fair to unlock the outstanding riddle of tuberculosis, "the mystery which so baffled early observers and so long delayed a more rational concept of the disease." The author pokes gentle fun at those who regard the most acute symptoms of tubercle as the products of mixed infection, and he considers the "mixed infection" view as really nothing more or better than the Virchowian doctrine that "the worst thing that can happen to a consumptive is that he becomes tuberculous." Whether he is enunciating truisms or propounding views perilously close to the heretical, the author puts his thoughts into words with commendable brevity and rare lucidity.

Lungentuberkulose. Second edition. By Dr. O. AMREIN. Berlin: Julius Springer. 1923. Pp. 141. 5s.

AN important function of a preface is to give the reader an inkling of the spirit in which the author has approached his task. The note which Dr. Amrein sounds in the preface to his book is one of modesty; he does not propose to startle his readers with new or unorthodox views, but to give them a summary of many years' first-hand clinical knowledge acquired in a sanatorium. The book is written for the practitioner in order to fill up gaps in his knowledge. But the book is also well worth reading by specialists—particularly by specialists who prefer new lamps to old and who, in running after the latest idea in tuberculosis treatment, are liable to forget the value of well-tried remedies. Take, for example, such a remedy as natural sunlight. It has lately become a fetish, and the success it has undoubtedly achieved in surgical tuberculosis has enticed the unwary and inexperienced into recommending it for pulmonary tuberculosis. Many ill-effects, including hæmoptysis, have followed sun-baths in phthisis, and this should be remembered. With regard to specific treatment and the choice of route by which to give tuberculin, the author is most impressed by Sahli's method of giving tuberculin by intracutaneous injection. Incidentally it might be remarked that less than a score of years ago the burning question was: Which tuberculin is the best? Now that the reputation of the various tuberculins is equally good—or bad—the controversy has turned on the routes, and the sceptical might be tempted to prophesy that in another decade or two all the routes will be con-

sidered equally good—or bad. The author deals in a perfunctory manner with Friedmann's vaccine, the Deycke-Much partial antigens, and so on, which a text-book cannot ignore, whatever their importance. A whole chapter is allotted to collapse therapy and much space to climatotherapy. Prognosis has a chapter all to itself—that rock on which many a clinical reputation has been built or shattered. Here the author is at his best, as one would expect of a physician with the long and intimate experience of tuberculosis that Dr. Amrein has had in Arosa.

Altogether a sound book greatly to the credit of the author.

LABYRINTH AND EQUILIBRIUM.

By SAMUEL STEEN MAXWELL, M.S., Ph.D., Professor of Physiology in the University of California. London and Philadelphia: J. B. Lippincott Company. 1923. Pp. 163. 10s. 6d.

This book is one of an excellent new series on experimental biology and general physiology, and presents an objective study of the equilibrium reactions of vertebrate animals, with especial reference to the part played in those reactions by the labyrinths. Subjective sensations and clinical applications of the present knowledge of this subject do not fall within the compass of the work. The basis of the account given is the author's own work on the labyrinth, and especially on the otoliths, of the dogfish, but frequent references to the extensive literature of the subject are made. There is also a discussion of the important part played by non-labyrinthine reactions in the orientation of the body; of these the most important are tactile, visual, and kinaesthetic reactions. The chapter on the mechanism of nystagmus is of especial interest. Much work has recently been done on this subject of equilibration and many gaps left by older work have been filled in; the book is, therefore, of considerable scientific value, and clinical applications would not be hard to find.

THE PHYSIOLOGY OF MIND.

An Essay. By FRANCIS X. DERCUM, A.M., M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, &c. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 150. 8s. 6d.

THE age-old problem of the interrelation of mind and body attracts the thinker to-day no less than in other generations, when controversies were apt to become somewhat acrimonious, and predispositions, religious and otherwise, were calculated to preclude serious attempts at reaching a solution. Not that in these days bias, conscious or unconscious, is unknown; it is rather that with new morphological, chemical, and physical considerations before him the thinker may make an approach to the question based on wider knowledge than was the case in many well-known instances of other years. We commend to the attention of the philosophically-minded Dr. Dercum's readable essay on the physiology of mind, in which from the standpoint of what would formerly have been dubbed "materialism" the writer endeavours to establish a biological interpretation of mental phenomena. Applying purely physical conceptions, he shows that these phenomena are in their essence physical, and holds that this view is substantiated by the facts of so-called psychophysics. "No neurone, no mind," might be taken to represent somewhat crudely Dr. Dercum's position. Perception, apperception, association, memory, and other processes can be explained by the transmission of impacts through the telencephalon. The collocation by the neurones concerned of the impressions received is thought. That any time at all is required for the response to sense-impressions is in Dr. Dercum's opinion significant as indicating that mental processes are essentially physiological.

INTOXICATIONS.

Traité de pathologie médicale et de thérapeutique appliquée. Vol. XXII. (Intoxications. Maladies de carence. Maladies par agents physiques. Affections médicales et traumatismes.) Published under the direction of EMILE SERGENT, L. RIBADEAU-DUMAS, and L. BABONNEIX. Paris: A. Maloine et Fils. 1922. Pp. 553. Fr. 28.

THIS volume, the twenty-second of a system of medicine of 32 volumes, deals with poisons, deficiency diseases, diseases caused by physical agencies, and localised internal diseases brought to light or aggravated by trauma. In a system of such magnitude, many of the volumes containing 400 to 700 pages, the incompleteness of the volume under review is surprising. A few selected poisons are discussed, some scantily, others in great detail, but more than half the poisons enumerated in British text-books on toxicology receive no mention. It is possible that our interpretation of the word "intoxications" may be broader, but nevertheless a work which includes opium and cocaine should certainly include, for example, veronal and chloral. Corrosive poisons, the majority of the mineral poisons and alkaloids, and most of the so-called synthetic drugs are omitted, except in a general way in the introductory chapter. The apparent want of systematic treatment of the subject has probably come about through the system of a number of different authors each writing separate sections; the principle has many advantages, and in the majority of the separate articles the author concerned has shown himself to be a master of his subject.

The volume concludes with a short account of the deficiency diseases, written mainly from the clinical standpoint, diseases produced by physical agencies, a miscellaneous collection of subjects including frost-bite and sea-sickness, and a chapter on certain diseases, such as tubercle and cancer, which may come to light or be aggravated by trauma.

DE L'AUSCULTATION MÉDIATE.

Translation of Selected Passages from De l'Auscultation Médiate (first edition). By THEOPHILE H. LAENNEC. With a Biography by Sir WILLIAM HALE-WHITE, K.B.E., M.D. Medical Classics Series. London: John Bale, Sons, and Danielsson, Ltd. 1923. Pp. 193. 12s. 6d.

WE recently reviewed an edition of Auenbrugger's "Treatise on Percussion" and now we have before us a portion of the work of his equally illustrious colleague Laennec. To these two men the medical profession, until the discovery of X rays, owed all its capacity for discovering conditions inside the chest cavity, whether morbid or otherwise. Sir W. Hale-White contributes a careful biography of Laennec, who died, by an irony of Fate, from the very disease which his discovery did so much to elucidate and to diagnose—namely, pulmonary phthisis. His monument in bronze stands in the charming old Breton town of Quimper, where he was born in 1781, but he has another more enduring than bronze in the heart of our profession. Sir W. Hale-White's excerpts deal with Laennec's studies of pulmonary conditions only; his observations upon cardiac diseases are not illustrated owing to lack of space. But English readers may be thankful that they possess as much as this book contains of a work which will ever be held to be a classic. It is refreshing to see how generously Laennec recognises the value of Auenbrugger's discovery. Both observers have attained recognition from masters of fiction. Mr. Kipling, as Sir W. Hale-White notes, has written of Laennec as an honoured prisoner of war in England (although he never was there), and every one will remember Dickens's description of percussion, although he does not mention Auenbrugger by name, as used by the incomparable Durdles in *Edwin Drood* and his diagnosis "Solid in hollow; and inside solid, hollow again! There you are! Old 'un crumbled away in stone coffin in vault!"

THE LANCET.

LONDON: SATURDAY, JUNE 23, 1923.

MIDWIFERY WITHOUT TEARS.

WE announced last week the formation of a Departmental Committee¹ by the Scottish Board of Health to investigate the question of puerperal mortality and morbidity, and to suggest remedial measures. Our Berlin Correspondent, in reporting on another page a recent meeting of the Berlin Medical Society, shows how large a share social and economic conditions may have in the matter. But want of skilled personnel hardly accounts for the whole trouble, and without attempting to anticipate the findings of the Scottish Committee, we dare prophesy that too high a proportion of fatality and ill-health will be found attributable to sepsis introduced by the trained accoucheur or midwife. It is time to make a definite attempt to raise the standard of aseptic practice in midwifery as carried out at the patient's home. The main difficulty, we believe, is the distressing contrast between the technique exacted in a hospital or well-equipped maternity home and that which it is possible to achieve in a cottage. The young practitioner, or even the medical student while still on the district, soon gives up the struggle or indeed never properly engages in it. The better his training under surgically clean conditions, the more easily does he get disheartened, for his plight is extremely hard; it is that of the competent billiard-player used to a servile marker and a flawless surface, compelled to play matches for the rest of his life on a cloth untrue, with a twisted cue and elliptical billiard balls, if not—to complete GILBERT'S vivid picture—in a dungeon cell. The outlook seems so hopeless that the practitioner may fail to take even those precautions against infection which he could take without involving much extra trouble or expense, once some convenient adaptation of hospital methods had been thought out.

We commend to the serious consideration of all who have to face these difficulties the technique outlined by Lady BARRETT on page 1279 of our present issue. Sterilised accouchement dressings are put up by instrument-makers in sealed drums or containers, though not by any means generally used, while for the help of the non-affluent the local sanitary authority might reasonably be asked to supply sterile packets containing gown, sheet, towels, and gloves, if there was a general demand for such conveniences. Failing this, ante-natal clinics throughout the country could usefully devote money and energy to this form of service, even if it meant cutting down other less vital activities. Experts in midwifery practice are not likely to complain that the demands made by Lady BARRETT are exorbitant, although they are so much in excess, both in time and in the number and skill of assistants, over those usually available in general practice, that the family doctor may be tempted to dismiss them as impracticable. But the gulf between ideals and actual practice must be boldly faced. The present conditions can hardly be visualised by those in charge of extern depart-

ments or they would at least devise a technique with sterile packages for their own district cases. Probably not 1 in 20 practitioners uses gloves and not 1 in 50 a sterile gown. Not 1 in 100 insists on the patient being shaved, and still fewer employ an anaesthetist throughout the second stage, when, as Lady BARRETT indicates, immediate lacerations might be thereby avoided as well as later painful disabilities—midwifery without tears in either sense of the word.

It is not only an economic question. Many practitioners would protest that such precautions as are advised by Lady BARRETT are wholly unnecessary and that without them results are good enough. That must be determined by figures which are hard to obtain, for it requires courage to notify as puerperal fever every case of fever that occurs in the puerperium, and there is no uniform standard observed as to what is to be notified as fever. Such figures as are available are disquieting and we may expect enlightenment from the Scottish investigation. But the economic question itself is difficult. We do not clearly see how the services of an anaesthetist could be paid for, except in better-class practice, since even the appointment of a full-time official anaesthetist for this purpose alone would hardly suffice a district of any size where two or three practitioners might require his services at the same moment. But whatever the difficulties may be they are not insurmountable. Many of the commoner risks of childbirth will, no doubt, be mitigated by the gradual improvement of ante-natal diagnosis and care, whereby complications—which are for the most part to be foreseen and avoided—are more and more eliminated; labour then becomes the simple, straightforward business of transit of a correctly-placed foetus through a genital canal known to be of sufficient calibre to pass it, when nature can be trusted to do all that is needed. But whatever the foresight observed, sudden complications may arise at any time during childbirth which will require the introduction of the hand or of some instrument into the genital canal, either of which must be frankly regarded as surgical treatment. We do not complain of the fact that practitioners do not attain sterile conditions for this minor obstetric surgery in the poorer homes. That would seem at present to be an impossible task. But we do protest against the attitude, happily becoming daily less common, of regarding such precautions as impracticable and beyond the reach of attainment.

THE BASTARDY AND LEGITIMACY BILLS.

THE medical profession has in one sense no concern with questions of bastardy or legitimacy. When called in to attend a child, a doctor does not first demand to see the mother's marriage lines. But though medical science is not occupied with the registration and enforcement of social verdicts, it cannot ignore their effect upon the unmarried mother's health and peace of mind or upon the child's vitality. Sir GEORGE NEWMAN'S annual reports on the state of the public health have more than once alluded to the well-known difference in death-rate between legitimate and illegitimate children. In 1920, for example, the death-rate of the latter was double that of the former and was shown to decline more slowly during the 12 months of the first year. The difference is attributed to the greater prevalence of disease, to the mother's ill-health and neglect, and to the child's lack of maternal nurture and of home influence. Whatever the causes, the result is a phenomenon which, in the words used by the present Minister of

¹ The Secretary of this Committee, Mr. C. L. Farmer, Scottish Board of Health, Edinburgh, would welcome offers of evidence from medical practitioners.

Health when introducing his Bastardy Bill as a private Member in 1920, accounts for the deaths of thousands and for the permanent lowering of the health of tens of thousands of children. The third reading of the Legitimacy and Bastardy Bills, achieved with less than the usual amount of obstruction on June 15th, will at least help to focus public attention on facts which ought to be disquieting to a country with a social conscience.

So far as legislation is concerned, the English attitude towards illegitimacy has always been severe. There was a famous occasion, in 1235, when the spiritual peers pressed that a bastard child should be regarded as legitimated by the subsequent marriage of its parents and should thus be allowed to inherit property. The earls and barons unanimously replied in a historic phrase that they were not prepared to alter the laws of England. From that day onwards this country has stood almost alone among the nations of Christendom in its attitude. Every year our overseas dominions give fresh adherence to the principle of legitimation by subsequent marriage. If, therefore, Mr. BETTERTON'S Bill passes into law, England will be merely falling into line as she has already done over marriage with a deceased wife's sister and as she will doubtless some day do over the adoption of children and over other social legislation with which the British nations overseas have previously experimented. The strictness of English law, which allowed the illegitimate child neither rights nor duties, neither a father nor a name, has been but little mitigated. Workmen's compensation benefit was long denied. In the case of war allowances and of the grant to unemployed workers' dependents Parliament was not ungenerous, "child" being sometimes defined as including illegitimate child. But on the whole our law of bastardy has moved but little in the last 50 years, except for the institution of "collecting officers" in 1914 (which makes it unnecessary for the woman to have any further communication with the putative father after the affiliation order has been made) and except for the 1918 increases in the amount of the weekly payments under an order, the maximum being raised from 5s. to 10s. It can hardly be maintained that even the new maximum is adequate or that the law is in other respects satisfactory. In effect the mother cannot get an affiliation order before her child is born. After the child is born, if she is not prevented by the restrictions in the law of evidence from getting her order, she may have considerable difficulty in enforcing it. The putative father sometimes manages to elude the jurisdiction altogether; even when liability is established, he may disappear from his last known address or may deprive the woman of payment because he prefers to go to prison for non-compliance with the order. These are some of the obstacles which Captain BOWYER'S Bill seeks to surmount. Its promoters, who, it seems, can now count on Home Office help, have prudently dropped one controversial feature (for registering the name of the alleged father and compelling him at the earliest moment to either admit paternity or clear himself) which appeared in Mr. CHAMBERLAIN'S similar Bill three years ago.

From the point of view of health it is hardly likely that legislation can do as much for the unmarried mother and her child as a progressive expansion of certain aspects of maternity and child welfare work which the public must be educated to support. The word "bastard" has harsh associations. The Labour party succeeded in eliminating it from the Army Act a few weeks ago, though they replaced it with the word "illegitimate,"—five syllables instead of two.

"I suppose," said Mr. LANSBURY on that occasion, "it will be acknowledged that we none of us chose our parents." That simple fact is always worth restating in any discussion on the subject. It is not the child's fault that it is what we call illegitimate. The Labour party at any rate can take credit for its record in seeking to remove the legal and social disabilities imposed upon the bastard child.

MILD SMALL-POX.

AN outbreak of small-pox in the West Country is attracting widespread interest. Fourteen cases were notified at Gloucester on June 12th and four others on June 13th; it is understood that Dr. J. R. BIBBY, medical officer of health for Gloucester, has borrowed a medical officer from a neighbouring municipality to assist in dealing with the epidemic and is co-operating with medical officers from the Ministry of Health. The first case to be recognised as small-pox occurred in Cheltenham and was at first regarded as chicken-pox. Its origin remained undiscovered, but inquiries to which it gave rise revealed a number of cases scattered over the county and beyond its borders, all of which arose about 12 days after a visit to Gloucester, where there now appears to have been a considerable undetected focus of infection. The isolation beds at Longford have now been supplemented by ample accommodation at the Brockworth Aerodrome. We take this opportunity of printing a valuable article by Dr. J. H. GARRETT, medical officer of health for Cheltenham, in which he sets out the features of mild small-pox as they have come personally before his notice in this epidemic. He tells us that the cases are quite commonly being mistaken for chicken-pox or something else upon their first appearance, and the photographs which he has taken may be of assistance to the practitioner in differentiating between the two diseases. The distinction has to be made without the help of constitutional disturbance, which is the first of Dr. W. McC. WANKLYN'S four cardinal points. It is, indeed, a new kind of small-pox which is at present prevalent in this country. The Minister of Health informed an inquirer in the House of Commons on June 5th that none of the 520 cases of small-pox reported in England and Wales during the first three

Age-incidence of Notified Cases of Small-pox in England and Wales during January–March, 1923.

Age.	No. of cases.	Age.	No. of cases.	Age.	No. of cases.
—1*	11	23	6	47	4
1	6	24	4	48	7
2	16	25	8	49	5
3	11	26	3	50	5
4	9	27	4	51	5
5	12	28	2	52	3
6	22	30	1	53	4
7	28	31	9	54	1
8	23	32	5	55	3
9	30	33	2	56	4
10	26	34	8	57	1
11	29	35	4	58	1
12	27	36	3	59	1
13	26	37	4	60	2
14	14	38	5	61	1
15	15	39	3	62	4
16	10	40	1	63	1
17	15	41	4	64	2
18	5	42	1	67	1
19	7	43	4	77	1
20	9	44	4	78	1
21	6	45	3	81	1
22	6	46	7	N.S.	2

*—1, under 1.

N.S., not stated.

months of the present year had proved fatal, and he gave the accompanying table, which is instructive enough of the age-incidence of these cases.

The change of type in small-pox is made quite clear from figures furnished the same day by the Minister of Health; in London the small-pox death-rate per 100,000 of population was 36 in 1885 and 28.5 in 1902, whereas since the latter date the death-rate has never exceeded 0.6. Nevertheless, 24 fatal cases of small-pox occurred during 1922 in London and neighbourhood, the numbers being distributed impartially over the various age-groups, only 3 cases being under 10 years of age. In European countries prior to the Great War, the last year with any considerable small-pox death-rate was 1901 in Paris, 1891 in Vienna, and 1912 in Italy. Particulars were also given of cases of small-pox and deaths therefrom in Japan, where notification is compulsory, and showed a high prevalence of a severe form in the years 1917-20.

Prevalence and Fatality of Small-pox in Japan.

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1915 ..	17	3	1918 ..	1469	285
1916 ..	266	48	1919 ..	4056	1115
1917 ..	5122	1153	1920 ..	3167	844

The corresponding figures are not available for 1921 and 1922, but up to that time the disease was of a very different character from that prevalent in England at the moment. The fact is, as Dr. GARRETT reminds us, that small-pox, like other infectious diseases, may occur in any degree of severity. America and South Africa have both claimed to be the birth-place of the mild form of small-pox. But whether it is called amaas, alastrim, varioloid-varicella, Kaffir milk-pox, weisse Pocken, or anything else, mild small-pox is still small-pox.

UNITY, PEACE, AND MEDICINE.

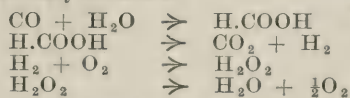
THE execution of large mural paintings is a task, quite apart from the question of artistic ability, which has been considered beyond the physical strength of women. Miss Violet Oakley has ignored the difficulties and performed her work in a manner which has gained her recognition among the foremost American painters. Without any indication of unusual physical powers she has been at work on these colossal paintings, some of them 17 ft. high, for the last 20 years, being the first woman to receive the medal of honour from the Architectural League of New York, and the youngest artist ever awarded the gold medal of honour of the Pennsylvania Academy. The pervading idea of a remarkable exhibition now being held at the St. George's Gallery, George-street, Hanover-square, by Miss Oakley and consisting of drawings and colotype reproductions for the great mural paintings for the State Capitol of Pennsylvania, is that unity and peace among the nations is the panacea for every human ill. In an immense panel colour study that embodies her conception of "supreme manifestation of enlightenment in international unity," the figures of a surgeon and a nurse are seen casting scalpel and drugs into the waters that flow from the feet of the figure symbolising unity, to bathe the roots of the trees whose leaves are for the healing of the nations. The accomplishment in draughtsmanship and colour of this artist is noteworthy, but we find her hasty or sanguine when she removes from an ideal vision of a united world the ministrations of medicine, the greatest bond of union between the nations. Unity and peace will not kill disease; but with unity and peace there will come concerted action against disease, and in such coöperative efforts the various nations will find the readiest means of development and consolidating mutual goodwill.

Annotations.

"Ne quid nimis."

OXIDATION IN THE LIVING CELL.

THE days are rapidly drawing to a close when the teacher of chemical physiology can dismiss the later stages of metabolism by the satisfying statement that the substances under consideration are oxidised to carbonic acid and water. In the past anabolism has been very carefully considered and students have been taught at great length the mechanism of building up fats and carbohydrates. Katabolism, however, has been neglected, amino-acids are dismissed from thought after deamination, fats and carbohydrates are banished by that all-covering statement "they are oxidised to CO₂ and H₂O." Prof. F. G. Hopkins, in one of an admirable series of lectures delivered at St. Mary's Institute of Pathology and Research, which appears in the front of our present issue, calls attention to the vast amount of work now accumulating on the later stages of disintegration of the more complex substances produced in the body. All these processes involve two essential chemical actions, either oxidation or reduction, and, as Prof. Hopkins points out, the answers to all katabolic questions are to be found actually in the study of these processes. Oxidation, as defined by chemists, means an increase in the non-metallic or electro-negative part of a compound, whilst reduction means the opposite. From the biological standpoint, the definition really reduces itself down to the giving or taking away of oxygen. On the face of it, the question seems very simple. Carbon monoxide burns in oxygen to produce carbon dioxide—a simple example with no apparent difficulty. However, it has been shown that perfectly dry oxygen and perfectly dry carbon monoxide cannot be made to combine, and that water is essential to the process, and this applies to practically all other oxidations. Another complication was demonstrated by Wieland, who showed that even free oxygen was not necessary, since, by using platinum-black and damp carbon monoxide, carbon dioxide and free hydrogen were produced. Finally, v. Wartenburg and Sieg published in 1920 their scheme of the burning of carbon monoxide in oxygen; there is nothing imaginative about this scheme, for all the bodies appearing in it have been actually isolated.



When such an apparently simple process proves to be so complex we may well wonder as to what the steps may be in the biological oxidation of such a substance as glucose.

From the above example we may illustrate the principle of Prof. Hopkins's lecture. Firstly, free oxygen is not necessary, the oxygen contained in the water molecule being able to take its place. Water, as is well known, exists in an ionised form—namely, H.OH. If the oxygen is to be given up, something must absorb or take up the hydrogen—viz., a hydrogen acceptor, the substance oxidised being regarded as an oxygen acceptor. As it is very difficult chemically to break up the OH group, there must be some substance, a catalyst, which enables this to be done. Such a body, facilitating the transport of oxygen or CO₂, would be essential to life. Hitherto nebulous bodies called oxidases and peroxidases have been credited with this feat, but thanks to the work of Prof. Hopkins, an exact chemical composition can now be assigned to at least one of them—viz., glutathione. This substance is capable of acting in a catalytic manner, and carrying separate O and H atoms ready for use. The importance of this step in knowledge is very great, since it reclaims the oxidases from the kingdom of bodies of "unknown constitution." By means of this compound, unsaturated fats can be rapidly oxidised at

body temperature. The busy practitioner may ask, How much better off are we for knowing these facts; what application have they to disease and its treatment? It is no exaggeration to say that an entirely new field of treatment can be seen in the near future, and the following example will bring home the importance of the new observations. Let us consider what is loosely included under the term acidosis, a common and serious enough condition to warrant the practitioner's close attention. Leaving out controversial points, we are justified in saying that the common clinical form of acidosis, whether a result of delayed chloroform poisoning, toxæmia of pregnancy, or diabetes, is a ketosis—that is to say, it is due to the presence of certain fatty acids. In normal metabolism the complicated fatty acids, such as stearic and palmitic acids, are desaturated and carbon atoms are oxidised away, two at each step, until the compound is reduced from 18 carbon atoms to 2 or 3, which in their turn disappear in the form of CO_2 and water. In acidosis, however, the oxidative processes are deficient, with the result that the degradation stops at the 4-carbon-atom stage. Derivatives of butyric acid, such as β -oxy-butyric acid and aceto-acetic acid, circulate and produce the symptoms of acidosis. Now, the degradation of these fatty acids is accomplished by desaturation and oxidation, both oxidative processes, and presumably both dependent on some body such as glutathione.

It is not going too far to suggest that acidosis in the future will be controlled clinically by the administration of some such substance, and in any case investigations on Prof. Hopkins's lines are bound to throw light on the treatment of this condition. The inborn errors of metabolism afford further examples. Research on oxidative catalysts may cure cystinuria, which is merely an expression of lack of oxidation. Prof. Hopkins could have chosen no more topical subject for his lecture, quite apart from the fact that it is to his particular interest and personal work in this branch of medicine that our progress has been largely due.

CHINA'S LEGITIMATE DRUG NEEDS.

THE proceedings of the League of Nations Opium Committee at Geneva during the past weeks and their attempt to find out the world's medical requirements of morphia and cocaine give importance to a pamphlet just issued by the International Anti-Opium Association of Peking, in which the secretary of the Association, Dr. W. H. Graham Aspland, makes an attempt to formulate an estimate of the yearly amount of narcotic drugs required for medical use in China. Dr. Aspland, who was for many years professor of obstetrics at Peking University Medical School and president of the North China Medical Association, recognises the extreme difficulty of getting accurate data, and his own figures are based upon calculations made from details supplied mainly from the mission hospitals and dispensaries, of which there are 709 in China, employing 657 foreign and Chinese doctors, and treating annually about 1,400,000 patients. Replies to his questionnaire were received from hospitals and dispensaries representing a yearly treatment of 850,000 patients. The sickness incidence of China was calculated at 5 per cent. "It may be higher but it certainly cannot be lower," says Dr. Aspland. "In European countries it is considerably lower and in U.S.A. only 2 to 2.5 per cent. Now if we may work on this hypothesis, then China, with 400,000,000 people, ought to have a sickness incidence of 20,000,000 yearly, and presuming that all these sick people were under treatment by qualified doctors either in homes, hospitals, or dispensaries, then according to our estimate of 15 g. per thousand patients based on the statistics already dealt with, a total of 300,000 g. or 10,000 oz. of morphia and narcotics would be required." However, in reporting to the League of Nations Dr. Aspland says that it was thought advisable to double this amount in order to cover all contingencies, for with an increasing medical profession

more narcotics would be scientifically used. A moderate estimate of the present illicit traffic in drugs cannot be less than 30 times that of the suggested medical requirements on the generous basis outlined. As regards cocaine, Dr. Aspland's estimate of the total yearly requirements for China is 2000 oz. "It is not proposed to leave any margin, for except in the hands of qualified doctors there cannot be other than addictive use."

In a supplementary letter which we have seen Dr. Aspland gives some figures regarding the seizures in the Customs during 1922. The amount taken at Shanghai, Tientsin, Peking, and Shansi amounted to 80,000 oz. The seizures of narcotics in the Shanghai Customs for the quarter ending March, 1923, alone show over 3000 oz. originally manufactured in Germany, 464 oz. from London, and 176 oz. from France. This does not, of course, imply that the drug in the first instance was not perfectly justifiably sold under licence to a purchaser, who subsequently dealt in it in an illicit manner.

SELECTION OF OPERATION FOR GLAUCOMA.

THE operative treatment of glaucoma has for many years been debatable ground for ophthalmic surgeons. The object of all operations is to provide a freer exit for the intra-ocular fluid and so bring down the intra-ocular tension. The classical operation of iridectomy attempts to do this by opening up the angle of the anterior chamber and so providing an easier access to the lymph channel known as Schlemm's canal, which lies near the junction of cornea and sclerotic. It was very soon recognised, however, that only in acute cases and in those chronic cases where the angle of the anterior chamber was not much altered by the growth of fibrous tissue, was this operation very successful, and, further, it was noticed that in many cases where the operation was faultily performed from the surgical point of view, leaving a tag of iris entangled in the scar, the result in stopping the glaucomatous process was far better than in other cases where no fault could be found with the surgical technique. The reason was found to be that in the operation where the iris was entangled the scar became permeable, and the drainage, which was insufficient through Schlemm's canal, was supplemented by drainage into the sub-conjunctival space. Unfortunately, this method of obtaining drainage—by unprotected iris prolapse—was by no means a safe one, for it afforded a possible channel for septic infection and was even sometimes followed by sympathetic irido-cyclitis. Hence it has come about that many minds have been turned to the problem of how to afford a safe passage for the intra-ocular fluid into the subconjunctival space. The earliest attempt was a simple incision through the sclera, an operation which had its vogue for many years, but the scar that follows is in most cases only temporarily permeable, and this operation is now seldom performed. Colonel H. Herbert was one of the pioneers of more efficient procedures, and in a recently published volume¹ he describes two of his earlier methods, each of which is still practised by some of his followers. These are the "wedge isolation" operation and the "small-flap sclerotomy"; the latter was very popular a few years ago and is still almost exclusively practised by some surgeons. Colonel Herbert himself, however, has made what he considers an important advance by his present operation, in which a tag of iris is deliberately included in a scleral scar, the whole operation being performed subconjunctivally. This operation has now been advocated by him for a good many years and has brought him into sharp conflict with the advocates of the more generally performed operation devised by Colonel R. H. Elliot, sclero-corneal trephining. "Deliberate iris-inclusion," he says, "has never made the least headway in this country; it has hardly made a

¹ The Operative Treatment of Glaucoma. By H. Herbert, F.R.C.S. Eng., Lieut.-Colonel, Indian Medical Service (retd.); Consulting Surgeon to the Nottingham and Midland Eye Infirmary, &c. London: Baillière, Tindall, and Cox, 1923. Pp. 152. 10s. 6d.

beginning. This is due to a series of misapprehensions." To dispel these misapprehensions is the main object of his book. The fact that an unprotected prolapse of the iris is dangerous is, in his view, no argument that a protected one is so. There is no doubt, he says, that this question of effective conjunctival covering is the main one. That early infective danger is a grave objection he admits, but only in the absence of the necessary precautionary measures. On the other hand, this form of treatment is definitely put forward as the most promising means of abolishing late infection in the higher-grade glaucomas. It is true that a certain number of surgeons of late years have abandoned the operation of trephining on this very ground of the danger of late infection. It will be enough here to indicate that arguments in favour of a rival procedure can be found in this book. In Colonel Herbert's view a conjunctival fistula such as is provided by the trephining operation is dangerous if it causes a localised conjunctival bleb over the trephine hole. In his own operation his aim is to avoid all trace of conjunctival vesiculation. Colonel Herbert's operation has already given rise to a good deal of debate and is not likely to be generally adopted without further controversy. It is at any rate a gain that his views should be made easily accessible to all who desire either to test or to criticise their soundness.

RINDERPEST IN INDIA.

CATTLE plague has frequently decimated herds in India to the extent of 40 per cent. Mr. W. A. Pool and Mr. T. M. Doyle, veterinary surgeons, of the Imperial Bacteriological Laboratory, Muktesar, have been studying means of prevention; for over 20 years the method of inoculation with serum alone has been used, answering its purpose fairly well, but falling far short of real efficiency, and these investigators have been testing the efficacy of what is known as the "serum simultaneous" method, which consists of subcutaneous injection of a small amount of virulent cattle plague blood on one side of the animal and on the other a suitable dose of antiserum. Over 450,000 cattle have been inoculated by this method, and the mortality-rate from all causes has only been 0.98 per cent. It has been found that cattle were immune for long periods, up to a year and even six years after inoculation. The economic aspect of outbreaks of rinderpest is serious; abortions and deaths of cows arise, and the losses of milk-supply and dislocation of agricultural operations at critical seasons are considerable. In India methods for the control of disease must be made as popular as possible, especially where cattle are concerned. In reporting their work Mr. Pool and Mr. Doyle consider¹ that sufficient experience has now been gained to warrant a start with the simultaneous method on a small scale in each province, and suggest that compensation should be paid to the owners of animals that die as a result of the inoculation.

MULTIPLE PEPTIC ULCERS.

In a paper read before the annual meeting of the Radiological Society of North America Dr. Miller M. Portis and Dr. Sidney A. Portis,² of Chicago, who report two illustrative cases, state that before the introduction of X rays the diagnosis of more than one peptic ulcer occurring at the same time was made only in the operation room or in the dead-house, whereas at present this diagnosis can be made with accuracy before operation. The following statistics given by various pathologists and clinicians are quoted, relating to the frequency of multiple peptic ulcers. Rokitsansky found that among his 79 cases of gastric ulcer no fewer than 17, or about 20 per cent., showed two or more open ulcers post mortem. In a

series of 638 cases of gastric ulcer at the Mayo Clinic 28, or 4½ per cent., had more than one ulcer present. Fenwick, in an analysis of 867 post-mortem records of gastric ulcer, found that one ulcer was present in 80.5 per cent., two in 12.1 per cent., three in 3.1 per cent., and four or more in 4.2 per cent. According to Fenwick, chronic gastric ulcer is multiple in 13 per cent. of all cases, while acute ulcer is multiple in 50 per cent. On the other hand, Goldschmid, in a review of 1300 autopsies at Frankfurt, among which there were 25 gastric and 21 duodenal ulcers, did not observe a single case with more than one ulcer present. In rare instances an excessive number of gastric ulcers is found—e.g., 60 (Hewitt), 34 (Osler)—or they may even be too numerous to count (Lange). Such cases are usually associated with septic infection or secondary syphilis. Duodenal ulcer, though usually solitary like gastric ulcer, may be multiple. Carman reported that among 139 cases of gastric ulcer, and 490 of duodenal ulcer, operated on in the Mayo Clinic in 1916 an ulcer was found both in the duodenum and stomach in 16 instances. The histology of multiple peptic ulcers resembles that of the single gastric or duodenal ulcer. The first of the two cases reported by the present writers occurred in a woman aged 54, who had been suffering from gastric trouble for years, with acute symptoms of eight weeks' duration. X rays showed two penetrating ulcers in the lesser curvature, and their presence was confirmed at the operation, when they were resected and the stomach anastomosed to the jejunum. The gall-bladder, which was full of stones, was removed at the same time. The patient made a good recovery. In the second case, which occurred in a woman aged 43, the X rays showed two ulcers on the lesser curvature and some deformity of the duodenal bulb. Posterior followed by anterior gastro-enterostomy was performed with some relief of the symptoms.

ATTACKS ON ALIENISTS BY THE INSANE.

ON March 6th last Dr. K. O. Olander, the distinguished Swedish alienist, was assassinated outside his house in Stockholm by an insane patient, who emptied his revolver into Dr. Olander's chest, killing him instantly. Taken by itself, this incident was not particularly extraordinary, and it was certainly not unique. As Prof. Laehr has shown in his work "Gedenktage der Psychiatrie," the toll taken by the insane from the medical profession runs into hundreds, and the risk of assassination taken by the medical profession in general, and alienists in particular, is one with which every educated person is familiar. But there were certain attendant circumstances in the case of Dr. Olander's assassination which merit comment. Some years ago Dr. Olander and a colleague were requested to investigate the mental state of a banker who had accused two banks of nefarious actions, and who was a notoriously refractory and dangerous person. Dr. Olander and his colleague, Dr. Bilström, were concealed in a room in which this patient and another banker had a conversation, and on the strength of what the alienists heard the suspect banker was certified as insane. It transpired that he carried a loaded revolver, and that it would have been impossible to investigate his mental condition by more direct methods. The procedure adopted in this case was, however, censured by the medical authorities, and, most unfortunately, this censure was published in the lay press a few days before Dr. Olander's assassination. The inquiry which followed it showed that the murderer had read this censure. Naturally these circumstances have raised a storm of protest from the Swedish medical profession, and the fact that the official censure of Dr. Olander's action was not intended by the medical authorities for publication in the lay press has only partially exonerated them from blame. Dr. Olander's many medical friends are collecting a fund, the proceeds of which will first be devoted to the education of his two children and will later be devoted to some permanent memorial. So much for the more or less personal aspect of this case. It has, however,

¹ Memoirs of the Department of Agriculture in India: Studies in Rinderpest. By W. A. Pool and T. M. Doyle, Agricultural Research Institute, Pusa.

² Journal of Radiology, May, 1923.

much more than a personal interest, and in Sweden, at any rate, it is likely to lead to far-reaching reforms with regard to lunacy legislation. It is obvious that alienists need more protection than they have hitherto been given; theirs is already a peculiarly difficult task, they are threatened on one side by irresponsible lunatics, and on the other side by bureaucratic authorities whose sense of responsibility to the insane and the letter of the law is apt to expose alienists to unnecessary risks. This case is also a sad example of the mischief the public press can make when it gives publicity to a subject that should either be ignored entirely or handled with great discretion.

SPONTANEOUS PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

EXTENSIVE or complete spontaneous pneumothorax is so dramatic, and usually so serious a complication in pulmonary tuberculosis, that its occurrence is at once recognised, while its grave effect upon the course of the disease is well known. On the other hand, in certain cases, a spontaneous escape of air into the pleural space may be the first indication of the presence of the disease, and provided that no infection of the pleura results and that the perforation of the pleural membrane closes quickly, recovery may be rapid and complete. It is well recognised that partial pneumothorax, of a degree sufficient to be apparent on X ray examination, yet giving only equivocal physical signs, may occur; but this pathological incident is usually regarded as uncommon. A monograph¹ by Dr. Nathan Barlow and Dr. James C. Thompson, which has lately been published under the ægis of the United States Public Health Service, sheds new light on the matter. The authors' chief thesis is that small pneumothoraces are so common that almost every patient suffering from pulmonary tuberculosis develops them sooner or later, and that they modify or even completely change the physical and X ray signs, the clinical symptoms, and the course of the disease. For the past two years Dr. Barlow has been engaged solely in the examination of physical signs, while Dr. Thompson has been chiefly occupied in reading and recording chest skiagrams. When there were discrepancies between the clinical and X ray findings, the patients and the skiagrams were confronted with each other, and a combined effort was made to find the cause of the conflicting interpretations. This work was carried out in an army hospital at New Haven, Conn., and in a series of 1000 patients there were 525 suffering from tuberculosis, and 475 from chronic non-tuberculous pulmonary disease which, in most cases, represented the relics of poison gas and influenza. Among the 525 cases of tuberculosis there were 189, or 36 per cent., in whom no small pneumothorax could be found; among the remainder from one to six small pneumothoraces were demonstrable in each case. Among the cases in which the tuberculosis was active and progressive, 75 per cent. showed one or more small pneumothoraces. In 25 cases necropsies were performed and opportunities afforded for observing the changes associated with previously demonstrated localised pneumothorax. Not only the number of these small pneumothoraces, but also their behaviour, is amazing. They come and go with extraordinary rapidity, and after complete closure of the opening in the lung "the absorption of the air in small pneumothoraces is a matter of hours only." Any small pneumothorax will disappear in less than six weeks after the underlying tissue has healed to a sufficient degree to withstand the negative pressure of the pleural cavity.

In the chapter on X ray appearances it is pointed out that by the usual technique for examination of the lungs, the perception of a small pneumothorax is usually impossible. The authors take two stereoscopic plates with different times of exposure. When fused in the stereoscope, the dark plate predominates in the

picture and gives penetration and contrast. The light plate carries the detail to the pleura in the central part and nearly to the pleura in the lateral part if the lung is normal. The principal X ray signs indicative of a localised pneumothorax are the following: (1) Compressed or collapsed lung tissue; (2) areas of rarefaction; (3) pleural cusps; (4) deviation of neighbouring or distant structures; (5) deviation of the trachea, mediastinum, heart, or diaphragm; (6) atypical position of densities, course of bronchi or distribution of fibrosis; (7) annular shadows; and (8) localised fluid levels evidently not in cavities. It appears that these signs, with the exception of the localised fluid level and certain kinds of annular shadow, are more frequently due to localised pneumothorax than to any other cause. They are often conspicuous, and, if not understood, may lead to diagnostic mistakes. Suddenly unexplained improvement in a case of pulmonary tuberculosis—the false recovery of Laennec—is, in the authors' opinion, usually due to a localised pneumothorax favourably influencing a considerable part of the diseased lung. As a rule, a localised pneumothorax has a favourable effect, at least for some time. But it is indicative of active disease, and it is dangerous because it lulls the patient and his physician into a false sense of security. The authors make the following bold claim which is based on a study of readmission cases due to relapse of the disease:—

"As we have just shown, 16 per cent. of all admissions were readmissions for relapse, 80 per cent. of whom have had more or less effective collapse of the entire lesion. It can readily be seen that it is probable that the great majority of patients who are discharged with pulmonary lesions which are apparently inactive because collapsed by localised pneumothoraces will relapse, and that the retention of such patients under treatment will prevent about 80 per cent. of the relapses, which occur within the first year after discharge. . . ."

An inevitable corollary to these views is the advice that no patient with a localised pneumothorax should be discharged from an institution. The interesting calculation is made that, in general, a localised pneumothorax can permit partial collapse of from four to eight times its own bulk of lung tissue. The authors conclude with a short note on the induction of a partial pneumothorax as a therapeutic measure. They regard as a most important contra-indication to treatment with complete artificial pneumothorax the almost entire suppression of signs of moisture on the other side by one or more small pneumothoraces.

This brief résumé of the work of Dr. Barlow and Dr. Thompson will be enough to stimulate the interest of all concerned in the treatment of tuberculosis. Within the 260 pages of the bulletin the authors marshal a host of cogent arguments in favour of their views.

STREPTOCOCCI IN STRANGLES.

THE problem of streptococcus classification is not only one of perennial interest from the purely systematic point of view but also one of much importance practically, since it bears profoundly upon the possibilities and technique of specific therapy in streptococcal infections. In general, the many schemes of classification which have been propounded have shown that it is usually possible to place a strain of the organism in one or other of the existing groups when its characters are examined soon after isolation. Certain of these groups are better defined than others, and the organisms comprising them have characters of a more permanent kind; such, for example, is the enterococcus group.¹ The significance and value of many of the other proposed groups are doubtful. The general theory of streptococcal infections appearing as such widely different clinical types is that the lesion resulting from an infection is dependent both upon the site of infection and the particular grade of virulence with which the streptococcus in question is endowed. If we had means of

¹ Bulletin Nr. 132, Government Printing Office, Washington.

¹ J. H. Dible: The Enterococcus and the Streptococcus Fæcalis, Journal of Path. and Bact., 1921, vol. xxiv.

recognising such subtle differences in virulence we might easily solve the problem, but these are lacking, and research has not yet demonstrated with any constancy the presence of more easily examined associated properties which would serve as well. It is of interest, therefore, to find a claim put forward by MM. Brocq-Rousseau, Forgeot, and A. Urbain² to have differentiated the streptococcus of a specific type of infection—strangles in horses—from morphologically similar strains met with in man and in other animal diseases. This they claim to have done by complement-fixation tests; a method which has so far failed to advance the general problem of the classification of the human-infesting strains. In a former paper their results show a constant fixation of complement by streptococci from strangles in the presence of what is presumably a polyvalent serum; streptococci from other animal sources, and from the human subject, gave negative results. In a more recent paper,³ the same investigators have pursued the subject by inquiring if these characters, which distinguish the streptococcus of strangles, are constant, or if, resultant upon changes in environment, they may become modified or lost. Besredka holds that by animal passage a streptococcus loses its identity and, becoming adapted to the animal body upon which the passage is made, acquires a new individuality. The experiments in this direction show this to be the case with the organisms for strangles, so that after a certain number of passages, be it upon mice, guinea-pigs, or rabbits, the ability to fix complement in the presence of the specific serum is lost. It is always possible in such cases that the original strain has become replaced by one proper to the animal experimented upon—a fallacy to be borne in mind in such work—but in this case the fixative power shows a gradual extinction, suggestive of a progressive modification of the organism in question. On the other hand, on ordinary culture-media the original characters of the organisms are preserved. These results are of considerable interest in their bearing upon the general problems of the streptococcus in the human subject.

MANCHESTER RADIIUM INSTITUTE.

THE report on the work of the Manchester and District Radium Institute for the year 1922, by Dr. Arthur Burrows, contains the record of the first completed year in the new building. Just short of 800 cases presented themselves for treatment, while the full capacity of the emanation plant was utilised, more than 500 emanation plates and 1250 emanation tubes being made during the year. Forty-one out of 85 cases of rodent ulcer treated were apparently cured. Exclusive of rodent ulcer, 59 cases of malignant disease, out of a total of 584, were rendered free from signs and symptoms of disease, thus maintaining the "usual average" of slightly over 10 per cent. of perfect immediate results following upon radium treatment. The types of carcinoma in which treatment is most gratifying are those affecting the cervix uteri and the mouth. The conclusion is reached in the report that dense fibrosis has no great influence on the specific gravity of tumours and therefore exerts little, if any, screening effect. Improvements have been made during the year in the arrangement for protecting the workers in the Institute, illustrations being given in the report of the various devices. A new diathermy apparatus has been installed with a view to combining its use with that of radium. Mention is made in the report of a special study by Dr. J. Holker on the physical chemistry of serum in health and disease, with special reference to the effect of alpha, beta, and gamma rays on serum. By this means it is hoped to throw light upon the general systemic effects which follow radiation and to obtain some indication of the degree of absorption of tumours undergoing ray treatment. The report, although tantalisingly brief, will be read with

interest by other workers in the same field; the results already achieved more than justify the generosity of Sir Edward Holt in presenting to Manchester its admirable Radium Institute.

SUCCESSFUL INSULIN MEDICATION.

THOSE who have not actually seen the change in a suitably chosen case of diabetes after insulin administration may hesitate to involve themselves or their patients in the mesh of expensive and elaborate biochemical tests which must accompany and control this treatment. For their comfort and encouragement we reproduce here two photographs of the same child, the interval between them being only two and a half months, before and during treatment. The first photo was taken on Dec. 7th, 1922, when the boy weighed only 15 lb., having had diabetes for two years. At this period, even with days of complete starvation, he had

Child with Diabetes Treated with Insulin.



Dec. 7th, 1922.

Feb. 26th, 1923.

glycosuria unless his diet was restricted to 5 per cent. vegetables. He was first put on insulin treatment at the St. Louis Children's Hospital under the care of Dr. W. McKim Marriott; in four days the sugar in the urine fell from over 40 g. a day to nil, while the blood-sugar fell from 400 to 100 mg. per 100 c.cm. in eight days. At the time of the second photo, Feb. 26th, 1923, the weight had increased to 30 lb. and the patient was on a diet of 55 g. carbohydrate, 85 g. protein, and 100 g. fat. Two months later he weighed 32 lb. During three months of treatment it was found possible to reduce the daily dosage of insulin to 15 units. We have but briefly summarised the data given by Dr. Ralph H. Major in the *Journal of the American Medical Association* for June 2nd, where the photos are published. Dr. Major gives only a short account of the case, but the pictures speak for themselves, and form a most convincing proof of the desirability of undertaking all the work still inseparable from insulin treatment in cases judged suitable therefor.

PROGRESS IN COMBATING VENEREAL DISEASE.

IN spite of reduced resources, it is recorded in the annual report of the National Council for Combating Venereal Diseases, presented on June 13th at the annual business meeting, that the volume of propaganda has increased rather than diminished. The formation during the past year of the Union Internationale contre le Péril Vénérien, on which all national organisations for combating venereal diseases are represented, is noted as an encouraging feature. The work considered by the Union as of immediate importance is: (1) Rendering non-infective the maritime and colonial

² MM. Brocq-Rousseau, Forgeot, et A. Urbain: Etudes sur le streptocoque gourmeux, *Annales de l'Institut Pasteur*, t. xxxvi., September, 1922.

³ Ibid., March, 1923.

services; (2) surveillance of emigration; (3) surveillance and concerted action along the frontiers; (4) international measures for the suppression of quackery; (5) a single moral standard for both sexes; (6) the study of the principle of legal responsibility, compulsory notification and treatment, penalties, &c. It is hoped that through the agency of this organisation adequate international machinery to secure the continuation of treatment for migrants will be adequately dealt with. Increased attention is being given in all countries to the problem of how the rising generation may be best instructed in the biological facts of life and in sex hygiene. As to the measures taken in this country, it is considered satisfactory that the fall in the number of new cases at the free treatment centres from 105,000 in 1920 to 84,000 in 1921 has continued, since in 1922 only 73,000 new cases presented themselves. There are, however, grounds for believing that a very large number of infected women are not seeking treatment. In order to help to overcome this difficulty it is suggested by the Council that infant welfare centres should provide facilities for diagnosis and that special arrangements for the treatment of patients passed on from infant welfare centres should be made at the venereal disease treatment centres. General approval is expressed by the council of the policy outlined in the report of the Trevithin Committee.

A SCHEME FOR A COUNTY PATHOLOGIST.

REPRESENTATIVES of the voluntary hospitals of the County of Dorset and of Yeovil met on June 5th at the Dorset County Hospital to discuss a scheme for the appointment of a pathologist for Dorset voluntary hospitals. The purpose of the scheme was to centralise the pathological work of the county, to provide a rapid means of obtaining reports on cases, and to enable practitioners in the county to obtain the immediate services of a pathologist and bacteriologist. The idea was for the pathologist to attend at a laboratory put at his disposal at the Dorset County Hospital, at stated hours each week-day, receiving an honorarium from the hospitals at an agreed sum *per capita* of all in-patients and at the same rate for those out-patients who required his services, and being free to take fees for private practice in consultation with practitioners. The out-of-pocket expenses of the laboratory were to be paid for by the pathologist, who was to be appointed after consultation with the professor of pathology at the University of Bristol. The scheme, as thus outlined, was unanimously approved in principle by the representatives, who undertook to present it for consideration by the various governing bodies of the hospitals, the capitation fee proposed being 2s. per head. Considerable doubt was expressed, however, whether the hospitals would undertake to pay such a levy. Even this sum was estimated to bring in an income of only £300 per annum, and, as Prof. Walker Hall pointed out in his letter accepting the invitation to coöperate in the nomination of the pathologist, the amount of honorarium available would be the determining factor in the type of pathologist likely to present himself for the appointment. During the first few years, however, the pathologist could not expect to obtain much from private fees, and Prof. Walker Hall suggested the deletion of the clause requiring out-of-pocket expenses to be paid for by him; Prof. Hall even foresaw the necessity of the provision of a competent laboratory assistant. Although the finance may present difficulties at the moment, we sincerely hope that any workable scheme to provide better facilities for pathological investigations in county districts will not be turned down without serious consideration. It is noticeable from reports of various voluntary hospital committees set up by request of the Voluntary Hospitals Commission to investigate conditions in the several areas, that while the large hospitals providing accessory departments such as X ray, pathological laboratories, and so forth, lack sufficient funds to carry on, the smaller hospitals, where no such facilities are provided, often have a

credit balance. The remedy might be a county financial fund allocating grants of money in accordance with work done. Pooling of special departments is not easy, but a beginning might be made on the lines suggested in Dorset, and we shall watch with interest the fate of the scheme we have outlined.

HARVEIAN SOCIETY: THE ANNUAL DINNER.

THE annual dinner of the Harveian Society, held at the Connaught Rooms on June 14th, with Sir Crisp English, the President, in the chair, was a successful and pleasant function. The company of about 150 people included a number of guests distinguished in law, literature, or politics, as well as in medicine. After the loyal toasts had been honoured, Mr. G. K. Chesterton proposed the toast of the Society. As a journalist, Mr. Chesterton said, he had little reason to be proud of the methods of journalism when applied to medical or scientific subjects. The lay journalist was apt to seize upon one sentence of a scientific address or discussion shorn of its context, and from this to elaborate an article for the public with scare headlines. For instance, he could imagine that in a discussion upon baldness one expert might make use of a phrase such as "if all these conditions should operate simultaneously and unchecked, it would appear that the loss of hair would be inevitable." The last part of this sentence would form the text of a newspaper article with headlines such as "Mankind Condemned to Baldness—Science Predicts a Bald Humanity." "Science" (always "she" in the newspapers) was in this fashion made responsible for the most unwarrantable claims or unfounded assertions; "Science" was reported as having said "something" when, in fact, the statement was made by one individual who might, and often did, hold views diametrically opposed to those of the rest of his fellow scientists; an enthusiastic theory that was far in advance of established fact was often served out to the lay reader as the "latest achievement of science." In an age of advertisement, which he was convinced that past and future generations would regard with surprise, the medical profession was one of the few that retained its sanity by refusing to join in this almost universal desire for notoriety. In his reply, Sir Crisp English, after mentioning that on its ninety-second birthday the Harveian Society was in a flourishing condition, referred to the many problems that confronted the Society both as medical men and as citizens, notably those of cancer, tubercle, and housing. Sir StClair Thomson proposed the toast of the sister societies in an amusing speech and Sir William Hale-White replied. The health of the guests was proposed by Dr. Charles Buttar. In his response, Lord Montagu of Beaulieu compared the function of roads to that of arteries in the body in that any obstruction led to congestion and congestion to decay. Sir Anthony Hope Hawkins, who alluded to medical men distinguished in literature—Smollett, Conan Doyle, and Somerset Maugham—and Sir Richard Muir, who made an amusing reference to the spectacle of a great medical expert witness in the box being cross-examined by an even greater medical expert in the dock, also responded.

THE GUARDIANSHIP SOCIETY.

A STILL further increase in the work of this Society was reported at the annual meeting, held at Brighton on June 11th. The special object of the Society is the care and supervision of the mentally and physically defective by boarding them out in carefully chosen families, by assisting them to obtain training and employment suited to their capabilities, and by visiting them and taking a friendly interest in their moral and material welfare. This type of work is done by no other society in the country. The annual report shows that the number of fresh applications during the year was 317 against 284 in the previous year, but the number of fresh cases actually taken was 156 against 163. The total number of patients cared for was 386, and the number remaining at the end

of the year was 243, against 371 and 231 respectively. Seventy-four of the cases had been certified cases—71 under the Mental Deficiency Act, and three under the Lunacy Act. There had also been 58 cases under supervision in their own homes for the Brighton Corporation. Cases had been received from 53 public bodies, 24 societies, hospitals, &c., and 57 from private sources. The scope of the industrial class has lately been increased; this class is now held daily and a special teacher has been engaged. Dr. Duncan Forbes, medical officer of health for Brighton, expresses the hope (see p. 1286) that a grant will be forthcoming for this educational work. In addition arrangements are in progress for a class to be held twice weekly for boot-repairing. The report goes on to say that the question of starting a hostel for feeble-minded boys, where they could go out to daily work under supervision and help to support themselves, had been raised, but such a scheme needed much consideration. A trained nurse has been appointed to visit patients in Brighton, and another such visitor is needed to help in the country, where patients were so scattered. The statement of accounts showed receipts amounting to £8633 8s. 8d., of which all had been spent excepting £1 15s. The report and accounts were passed, after which a large committee was elected, the co-opted members comprising representatives of the Brighton Corporation Mental Deficiency Act Committee, the Hastings Corporation Tubercular Care Committee, the London County Council, and the Brighton Education Committee and Board of Guardians. An address on the Guardianship and Its Aims was given by Dr. Helen Boyle. She said that people of this country appeared to have been rather obsessed with the idea that if they had good buildings and good food for their afflicted children they had all that was necessary. They did not realise that what was most important was home care; Miss Woodhead, who was a pioneer in that movement, had realised the need. Children were sent by boards of guardians all over the country and it seemed rather absurd they should have to come to Brighton when the homes they required could, of course, be found much nearer. A great many homes got so fond of the poor little creatures boarded-out in them that even if the money was not always forthcoming they were still content to carry on. While they might get love, devotion, and self-sacrifice in institutions, said Dr. Boyle, it was impossible for a matron to bestow the same affection upon 30 children as a mother could bestow upon three or four. Apart from the friendly supervision over these less gifted creatures, the Society did everything possible to find suitable occupations for them, and it was hoped that a grant would be secured for the occupation centre which had been started, and that it would enjoy the support such centres received in other parts of the country. Dr. Boyle's address and one by Dr. Francis H. Edwards on Mind and Matter were greatly appreciated by those present.

AN important debate on the Surgery of the Hepatic and Common Bile-ducts will be opened by Dr. William Mayo, of Rochester (Minnesota), at the Surgical Section of the Royal Society of Medicine, on Wednesday, June 27th, at 5.30 p.m. Sir Berkeley Moynihan, Mr. James Sherren, Mr. Grey Turner, and Mr. A. J. Walton will take part in the discussion, each dealing with a particular aspect of the subject. A large exhibition of specimens illustrating the pathology and surgery of the bile-ducts, kindly loaned by various metropolitan museums and arranged by Mr. James Berry, President of the Section, will be on view in the lecture-room during the afternoon.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—On Monday, June 25th, at 7.30 p.m., the Honorary Fellowship of the College will be conferred on Sir Harold Stiles, Regius Professor of Clinical Surgery in the University of Edinburgh. The Charter Day dinner will be held in the College Hall immediately after the ceremony.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXV.—THE PROPHYLACTIC TREATMENT OF PUERPERAL SEPSIS.

CERTAIN facts as to how puerperal sepsis arises are well known: (1) There are undoubted cases of auto-infection arising from a pre-existing focus of sepsis in the mother herself, which is roused to renewed activity immediately after delivery, when the puerperal woman apparently passes from a condition of comparative immunity to one of special susceptibility. (2) It may, however, and probably most often does, arise by introduction of pathogenic germs by the accoucheur, either through error in the technique of sterilisation of his own person or by introduction of germs from the vulva, perineum, or anus of the mother when making examinations. (3) Infection may be introduced into the genital canal of the puerperal woman, especially when lacerations are present, through carelessness in nursing, through infection by the hands of the patient herself, or by intercourse taking place in the early days of the puerperium.

Such "accidents" will only be abolished by the adoption in midwifery of routine methods which are easily available, can be used quickly and safely by a busy practitioner whose days are full of other responsibilities besides midwifery, and become a habit which it is easier to follow than to break.

Auto-infection.

Auto-infection can only be prevented by careful examination during pregnancy, with treatment of septic conditions, such as:—

(a) *Oral sepsis* has very real import for midwifery. Even alveolar abscess and infection of sinuses are occasionally found in pregnant women who make no complaint till questioned; pyorrhœa and septic throats are not uncommon. Dental clinics for expectant mothers should help the practitioner to secure clean dental conditions for poor patients, and private dentists are available for others. The superstition that dental interference should be postponed until after delivery must be fought.

(b) *Staphylococcal infections*, such as whitlows, sores on the head or elsewhere, boils, &c., if present, should be dealt with before labour sets in. When generalised sepsis, such as recurring boils, is present, injections of collosol manganese into the muscles of the buttock give good results.

(c) *Vaginal discharge* is important, and must not be overlooked; it usually comes from a chronic endocervicitis, which may be due to the gonococcus or to other organisms. In any case, the cervix should be rendered aseptic during pregnancy, for a discharge may not only infect the child's eyes at birth if gonorrhœal in origin, but is a possible source of infection of the placental site after delivery. When vaginal discharge is present the appendages should also be examined, for chronic salpingo-oöphoritis still further increases the risk of puerperal fever. Incidentally, when chronic tubal trouble is lighted up after delivery the rise in temperature is more likely to occur seven than three days after delivery.

Allied to that of auto-infection is the question of the general resistance of the patient; lowered resistance may be present without obvious sepsis, and should none the less be treated. Healthy women feel a greater sense of vitality during pregnancy than at other times. If pregnancy seems a burden to a woman her general health and nutrition need attention before the strain of labour comes.

Sepsis during Labour.

Ante-natal Examination.—The avoidance of sepsis introduced at the time of labour is to some extent dependent on efficient examination during pregnancy, in order to ascertain if the size of pelvis and child

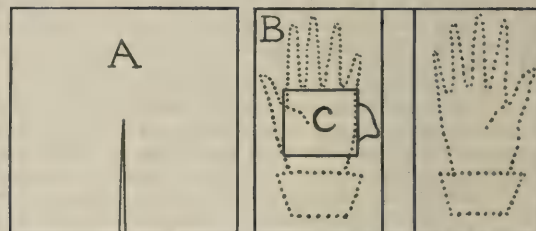
are normal in relation to each other. Attempts are sometimes made to deliver a large child through a small pelvis, involving a severe and damaging operative delivery, when such risks might have been avoided by induction of labour a few weeks earlier. Labour in which manipulative interference and damage to tissues play a part must obviously be more often associated with the introduction of pathogenic bacteria than normal delivery, and with greater ante-natal care such labours should become more rare.

Assistance Available during Labour.—This has a practical influence on aseptic results. Practitioners should work in coöperation with a trained nurse-midwife and an anaesthetist. The nurse must be specially trained in abdominal examination and diagnosis, and in methods of strict asepsis. *The anaesthetist should be available for the whole of the second stage.* The nurse will prepare the patient at the beginning of labour, and if there is any doubt whether the case is normal or if the patient is a primipara the practitioner should be summoned; many complications are avoided by seeing a primipara at the beginning of labour, and at least ascertaining by abdominal examination that the child's head has descended into the pelvis. Preparation by the nurse will include the emptying of the lower bowel by enemata, after which the posterior part of the vulva and round the anus should be shaved. The vaginal orifice and perineum and surrounding parts of the skin should be thoroughly washed with warm water and ether soap, and the whole area is painted when dry with iodine solution, after which a sterile sanitary pad or towel should be applied. In primiparae the repeated application to the perineum during labour of warm sterile pads soaked in lysol (1 in 320) will serve the double purpose of relaxing the perineum and disinfecting the surface.

The Second Stage.—When the second stage begins, which the midwife will recognise by the rupture of membranes and alteration in the character of the pains, the patient should be relieved by chloroform, a few drops being given on an open gauze mask just before each pain. The time may be recognised either by the quickening of the pulse or the gradual hardening of the uterus, and even a few drops given immediately either sign appears relieve the distressing character of the pain. The patient can still use her voluntary muscles to bear down during a pain, and can sleep quietly between the pains, with lessened nervous tension and exhaustion. The patient should be able to talk coherently when awake, until the head is on the perineum, when she is gradually allowed to become more unconscious. If not needed before, the accoucheur will be summoned when delivery approaches. The patient should be anaesthetised to full surgical anaesthesia at the moment of delivery of the head, after which no more anaesthetic need be given unless stitches are required. Anaesthetics during labour not only relieve the patient from immediate pain and subsequent exhaustion, but ensures a relaxation of the muscles of the pelvic floor during the passage of the head; thus lacerations, which predispose to sepsis, may be avoided, and also intrinsic damage to the muscles and fasciae with subsequent prolapse of organs.

Sterilisation of Outfit.—A quick effective method for ensuring sterile conditions is of great importance to the busy practitioner. A tin of sterilised necessities is essential. It should contain gown, head-piece, and gloves; a square of gamgee tissue to go under the patient as she lies in the left lateral position; a square sheet slit up the middle half way; towels, swabs, a roll of gauze, sanitary pads, binder, thread and dressings for the cord. The slit sheet (A) is easily prepared and is used to cover the patient and keep the area of operations aseptic. The top of the slit lies at the anal cleft, the upper part of the divided portion covers the right thigh and the lower half passes over the median surface of the left thigh. The undivided part of the sheet covers the body of the patient and her coverings and enables a sterile hand to pass over it to the abdomen without fear of contamination. A sterile towel below completes the aseptic area.

The easy aseptic adjustment of gloves is most important. For sterilisation each pair should be placed in a special linen case (B) after being powdered inside and out and the cuff folded back so that only the inside of the glove is touched when they are put on. A towel to dry the hands before putting on the gloves should be placed between each glove case. The linen case has two pockets, one for each glove, with a small pocket for a bag of powder for the fingers. The case can be opened on a table, the fingers powdered and each glove drawn on in a few



A, square sheet slit up to middle; B, linen case, with pockets for gloves; C, small pocket for powder.

seconds. After washing the accoucheur can slip on gown, head-piece, and gloves in a minute or two; the area of the patient with which he comes in contact has already been rendered aseptic by the nurse. After the birth of the child careful examination of the perineum and inner aspect of the vaginal orifice will enable the accoucheur to recognise and repair any tears and hence to leave no open wound in a neighbourhood very liable to sepsis.

The Third Stage.—The conduct of this stage should not be hurried. If after the child is born the uterus is allowed to rest without undue anxious stimulation, the placenta is more likely to be expelled naturally by an effective pain. Manual removal of a so-called adherent placenta should be avoided unless dangerous hæmorrhage renders it essential. It involves a greater risk of puerperal sepsis than any other manipulation in midwifery.

The Puerperium.—The prevention of sepsis in the early days of the puerperium depends on the nurse. Irrigation of the perineum, which is dried by sterile gauze, is better than swabbing. The aseptic care of the breasts requires a sterilised box such as a good-sized cigarette box for each patient. It should contain a pile of gauze squares and cubes of wool packed. If given boric lotion the patient can herself swab the nipples with wool and dry them with gauze before and after each feed. Breasts thus cared for will not develop septic conditions. The patient must be guarded during the first week from the introduction of infections through visitors.

Sundry Points.—In every district, if aseptic midwifery is to be carried on, a central sterilising station, public or private, should be available for the supply of sterilised midwifery tins, dressing tins, with such other requirements—e.g., for the breasts—as practitioners may need. The services of an anaesthetist for midwifery ought not to be considered a luxury but a necessity, to be paid by public funds if necessary.

The conduct of normal labour only has here been discussed. It is desirable that operative midwifery should be conducted in a properly equipped labour ward or theatre. Practically, however, many operative procedures have to be done in the bedroom. All the more essential then is the provision of an ample supply of sterile towels, &c., and extra gloves. Instruments after boiling should either remain in the steriliser, or be placed on a dish previously rinsed in strong lysol and covered by a sterile towel. Before any delivery vaginal retractors, large-toothed vulsellæ, a few Spencer Wells forceps, dissecting forceps, needles, silkworm gut and needle holders, and also sterile catgut should be boiled ready for use though they may not be required.

FLORENCE E. BARRETT, C.B.E., M.D., M.S.Lond.,
Consulting Obstetric and Gynaecological Surgeon,
Royal Free Hospital.

Special Articles.

BRITISH MEDICAL ASSOCIATION: ANNUAL MEETING AT PORTSMOUTH.

PROVISIONAL PROGRAMME.

THE ninety-first annual meeting of the British Medical Association will be held at Portsmouth from July 24th-27th, under the presidency of Mr. Charles P. Childe. The Association last met at Portsmouth in 1899, under the presidency of the late Dr. J. Ward Cousins. The annual meeting will be preceded by the annual meeting of the Representative Body, which will be opened at 10 A.M. on Friday, July 20th, with Dr. R. Wallace Henry in the chair. The statutory annual general meeting will be held at 2 P.M. on Tuesday, July 24th. The President will deliver his address on that evening, and the adjourned general meeting will be held at 7.45 P.M. The annual dinner of the Association will take place in the Town Hall on Thursday, July 26th, at 7.30 P.M. The annual exhibition of surgical appliances, food, drugs, and books will be open from July 25th-27th.

The scientific part of the meeting will divide, as usual, into a number of sections meeting from 9.45 A.M. to 12.45 P.M. for papers and discussions; laboratory and clinical demonstrations in connexion with the work of the sections will be given in the afternoons.

The following sections each meet on three days—Wednesday, Thursday, and Friday, July 25th, 26th, and 27th.

Medicine.

President: Sir Thomas J. Horder. Vice-Presidents: Drs. George A. Allan, J. J. Perkins, John Phillips, C. F. Routh, J. Odery Symes. Hon. Secretaries: Dr. R. A. Dove, "Chesterfield," Elm Grove, Southsea; Dr. Geoffrey Evans, 23, Park-square, London, N.W. 1.

Provisional Programme.—July 25th.—Discussion: Diabetes. To be opened by Sir Thomas Horder, followed by Drs. P. J. Cammidge, George Graham, J. A. Nixon, and John K. Rennie. Dr. F. G. Banting (Toronto), the discoverer of insulin, will also take part in the debate.

July 26th.—Discussion: The *Ætiology* and Treatment of Heart Disease in Early Life, with special view to the prevention of Chronic Cardiac Insufficiency. To be opened by Dr. Reginald Miller, followed by Drs. G. A. Allan, J. G. Emanuel, T. F. Cotton, Carey Coombs, Wilfrid Attlee, and M. O. Raven.

July 27th.—Discussion: Chronic Bronchitis. To be opened by Dr. J. J. Perkins, followed by Drs. J. O. Symes, E. Hyla Greves, M. G. Foster, A. C. Inman, E. L. Collis, and Mr. G. Seccombe Hett.

Surgery.

President: Sir Henry M. W. Gray. Vice-Presidents: Mr. Douglas Drew, Sir T. Crisp English, Mr. T. A. Munro Forde, Mr. John Patrick, Mr. Percy Sargent. Hon. Secretaries: Mr. Harold Burrows, The Cams, Grove-road, Southsea; Mr. B. C. Maybury, 42, Wimpole-street, W. 1.

Provisional Programme.—July 25th (10 A.M.).—Discussion: The Treatment of Obstruction of the Colon. To be opened by Mr. Arthur H. Burgess, followed by Messrs. Seymour G. Barling, Arthur B. Mitchell, Herbert W. Carson, John P. Lockhart-Mummery, and Charles A. Pannett. Discussion (12 noon): Are the Results of the Operative Treatment of Malignant Disease Improving? To be introduced by Mr. H. J. Paterson.

July 26th.—Discussion: The Treatment of Acute Primary Infections of the Hand (including sequelæ). To be opened by Mr. David P. D. Wilkie, followed by Messrs. C. Max Page, F. D. Saner, Gerald T. Mullally, and R. M. Handfield-Jones. Discussion (12 noon): Ventriculography. To be introduced by Mr. A. A. McConnell.

July 27th.—Discussion: Anæsthetics from the Surgeon's Point of View. To be opened by Mr. Wilfred Trotter, followed by Sir William de Courcy Wheeler and Drs. A. L. Flemming, J. Blomfield, and A. E. Boyd.

Obstetrics and Gynaecology.

President: Mr. Victor Bonney. Vice-Presidents: Prof. W. Blair Bell, Dr. James Hendry, Dr. Louisa Martindale, Dr. A. Bosworth Wright. Hon. Secretaries: Dr. Gertrude Dearnley, 27, Seymour House, Compton-street, London, W.C. 1; Dr. E. F. S. Green, 8, Victoria-road, Southsea.

Provisional Programme.—July 25th.—Discussion: Treatment of Acute Salpingitis. To be opened by Mr. Aleck Bourne, followed by Profs. W. Blair Bell and C. G. Lowry, Mr. L. Phillips, Drs. C. Oldfield, J. Campbell, F. Edge, Miss F. Ivens, Mr. Beckwith Whitehouse, Drs. Eardley Holland and S. Forsdike, Mr. L. Rivett and Mr. Victor Bonney.

July 26th.—Discussion: The Use and Abuse of Forceps. To be opened by Mr. Comyns Berkeley, followed by Profs. C. G. Lowry, J. A. Kynoch, and R. G. McKerron, Drs. J. Campbell, F. Edge, and C. E. Purslow, Miss F. Ivens, Dr. S. Forsdike, Mr. L. Rivett, Drs. D. McAskie, R. K. Ford, and Mr. Victor Bonney. At 3 P.M. Lieut.-Colonel A. Buchanan, I.M.S., will give a demonstration of midwifery models.

July 27th.—Papers: Prof. W. Blair Bell: Modern Views on Dysmenorrhœa; Prof. C. G. Lowry: Three Cases of Chorion-epithelioma, and One Case of Tuberculosis of the Cervix; Mr. Beckwith Whitehouse with Dr. Henry Featherstone: Certain Observations on the Innervation of the Uterus; Dr. S. Forsdike: Treatment of Uncontrollable Uterine Hæmorrhage by Radium; Mr. Lane Roberts: Syphilis in its Relation to Obstetrics; and Dr. W. R. MacKenzie: Röntgenographic Pelvimetry.

Pathology and Bacteriology.

President: Dr. Hugh Maclean. Vice-Presidents: Prof. Frederick Hobday, Dr. A. F. Bernard Shaw, Prof. G. Haswell Wilson. Hon. Secretaries: Dr. J. A. D. Radcliffe, 41, Clarendon-road, Southsea; Dr. R. L. Mackenzie Wallis, 105, Harley-street, London, W. 1.

Provisional Programme.—July 25th.—Discussion: Diseases of the Stomach, particularly with reference to Modern Methods of Investigation. To be opened by Dr. Charles Bolton.

July 26th.—The Value of Serological Tests in Diagnosis. To be opened by Prof. H. R. Dean.

July 27th.—The Part Played by Fungi in Disease. To be opened by Dr. A. Castellani.

The officers of the Section will be glad of the loan of X ray negatives or prints for exhibition in the Museum. Offers should be addressed to Dr. M. Aston Key, 14, Clarendon-road, Southsea, Portsmouth.

Neurology and Psychological Medicine.

President: Dr. Henry Devine. Vice-Presidents: Drs. D. K. Henderson, C. M. Hinds Howell, George Riddoch, E. J. Davis Taylor. Hon. Secretaries: Dr. J. L. Jackson, Knowle Mental Hospital, Fareham, Hants; Dr. C. P. Symonds, 74, Wimpole-street, London, W. 1.

Provisional Programme.—July 25th.—Discussion: The Nervous Child. To be opened by Dr. H. C. Cameron.

July 26th.—Discussion: The Sequelæ of Encephalitis Lethargica. To be opened by Dr. E. F. Buzzard. In the afternoon Dr. C. Da Fano will give a demonstration on Epidemic and Herpetic Encephalitis.

July 27th.—Discussion: The Prognosis in Psychosis occurring during Adolescence. To be opened by Dr. D. K. Henderson.

The following sections will each meet on two days:—

Ophthalmology.

President: Sir John H. Parsons. Vice-Presidents: Dr. W. S. Inman, Mr. Ransom Pickard. Hon. Secretaries: Mr. M. W. B. Oliver, 128, Harley-street, London, W. 1; Dr. J. A. Valentine, South View Lodge, 53, Kent-road, Southsea.

Provisional Programme.—July 26th.—Discussion: The Clinical Significance of Scotometry. To be opened by Mr. A. H. H. Sinclair.

July 27th.—Discussion: Ophthalmology in its Relation to the Navy, Army, and Air Force. Air Commodore D. Munro will speak, and other officers of the R.A.F. and from the Navy and Army will take part.

Public Health.

President: Dr. A. Mearns Fraser. Vice-Presidents: Dr. W. J. Howarth, Dr. L. E. W. Stephens, Prof. F. E. Wynne. Hon. Secretaries: Dr. W. H. Lamplough, Bredon, Alverstoke; Dr. E. Lewys-Lloyd, Gothic House, Towyn, Merionethshire.

July 26th.—Discussion: What Factors have contributed towards the Recent Decrease of Infantile Mortality, and are such Factors likely to be Permanent or Temporary? To be opened by Dr. James Wheatley.

Paper: Dr. H. Scurfield: The Value of Watercress as a Food, and Suggestions for its Extended Use.

July 27th.—Discussion: The Effect on Health of Sewer Air and Drain Air. To be opened by Prof. F. E. Wynne.

Paper: Dr. E. B. Hazleton: A Predisposing Cause of Tuberculosis and its Prevention.

Diseases of Children.

President: Dr. Edmund Cautley. Vice-Presidents: Drs. Catherine Chisholm, William P. McEldowney, Eric Pritchard. Hon. Secretaries: Dr. E. A. Cockayne, 33, Weymouth-street

London, W. 1; Dr. R. Hamer Hodges, 93, Victoria-road, N., Southsea.

Provisional Programme.—July 26th.—Discussion: Acidosis and Alkalosis in Children. To be opened by Dr. P. J. Cammidge.

July 27th.—Discussion: Summer Diarrhoea. To be opened by Dr. David Nabarro.

Paper: Dr. H. T. Ashby: After-effects of Tuberculosis of Abdomen in Children.

Laryngology and Otolology.

President: Dr. E. B. Waggett. Vice-Presidents: Messrs. Somerville Hastings, A. J. M. Wright. Hon. Secretaries: Dr. G. H. Ross, 28, Kent-road, Southsea; Mr. H. G. Bedford Russell, 86, Harley-street, London, W. 1.

This Section meets on July 26th and 27th.

Provisional Programme.—(a) Laryngology.—Discussion: Spasm of Larynx. To be opened by Sir StClair Thomson. (b) Otolology.—Discussion: Non-suppurative Conditions of the Labyrinth. To be opened by Mr. Sydney R. Scott.

Radiology and Electrolology.

President: Dr. S. Gilbert Scott. Vice-Presidents: Prof. Sidney Russ, Dr. W. J. Turrell. Hon. Secretaries: Dr. E. Beverley Bird, 15, Clarence Parade, Southsea; Dr. G. T. Loughborough, 9, Bentinck-street, London, W. 1.

Provisional Programme.—July 25th.—Discussion: The X Ray Examination of the Urinary Tract. To be opened by Dr. R. W. A. Salmond. Paper: Pyelography, by Dr. R. Ogier Ward.

July 26th.—Discussion: Medical Diathermy. To be opened by Dr. E. P. Cumberbatch. Supplementary paper: Dr. C. A. Robinson.

There will be an exhibition of X ray negatives and prints of the urinary tract. Prints or negatives (up to the number of ten for any name or hospital) should be sent to Dr. E. Beverley Bird, 15, Clarence Parade, Southsea, before July 10th.

Naval and Military Hygiene.

President: Surgeon Rear-Admiral Sir Percy W. Bassett-Smith. Vice-Presidents: Surgeon Captain R. St. G. S. Bond, Air Commodore David Munro, Sir Leonard Rogers, Lieut.-Colonel N. J. Crawford Rutherford. Hon. Secretaries: Surgeon Commander K. Digby Bell, R.N., Royal Naval School of Physical Training, Portsmouth; Surgeon Commander D. H. C. Given, R.N., Commander-in-Chief's Office, Portsmouth; Captain W. L. E. Fretz, R.A.M.C., Alexander Military Hospital, Cosham, Hants; Wing Commander H. E. Whittingham, R.A.F., Central Laboratory, Avenue House, East End-road, Finchley, N. 3.

Provisional Programme.—July 25th (10 A.M.).—Papers: Group Captain M. W. Flack: Some Considerations in the Estimation of Physical Efficiency; Lieut.-Colonel C. R. Sylvester-Bradley: Some Aspects of Normality, with special reference to the Selection of Recruits; Surgeon Commander K. Digby Bell: Some of the Points Embodied in the Curriculum of a Student of Physical Training.—(12 noon): Wing Commander H. E. Whittingham and Flight Lieut. A. F. Rook: The Aetiology of Phlebotomus Fever.—(2.30 P.M.): Visit to Royal Naval School of Physical Training, where a demonstration and discussion will take place.

July 26th (10 A.M.).—Papers: Major M. Sinclair: Recent Changes in Fracture Treatment; Surgeon Captain D. W. Hewitt: Some General Remarks on Naval Surgery; Major H. Graeme Anderson: Aeroplane Accidents.—(2.30 P.M.): Demonstration by Major M. Sinclair of special appliances for treatment of fractures. Visit to Royal Naval Hospital, Haslar.

Tuberculosis.

President: Sir Henry J. Gauvain. Vice-Presidents: Drs. Robert Robertson, Jane Walker, R. A. Young. Hon. Secretaries: Dr. W. Young Woodburn, 75, Festing-road, Southsea; Dr. J. Browning Alexander, 143, Harley-street, London, W. 1.

Provisional Programme.—July 25th.—Discussions: (1) The Artificial Light Treatment of Lupus and other Forms of Tuberculosis. To be opened by Prof. Reyn (Copenhagen), followed by Dr. J. H. Sequeira. (2) The Present Position of the Surgical Treatment of Pulmonary Tuberculosis. To be opened by Dr. Gravesen (Vejlefjord Sanatorium).

July 26th.—Discussion: The Social Aspects of Tuberculosis, with special reference to Infectivity. To be opened by Dr. Jane Walker, followed by Dr. H. Batty Shaw, Prof. S. Lyle Cummins, Drs. F. N. K. Menzies, G. Brookes Dixon, and John E. Chapman.

The following sections will each meet on one day.

Medical Sociology.

President: Dr. H. B. Brackenbury. Vice-Presidents: Drs. Alexander Forbes, L. A. Parry, Sir Leslie Scott. Hon. Secretaries: Dr. Arnold Lyndon, Grayshott, Hindhead, Surrey; Dr. A. H. S. Roberts, 428, Commercial-road, Portsmouth.

Provisional Programme.—July 27th.—Discussion: Mental Deficiency in its Social Aspects—(a) education, (b) segregation, (c) sterilisation. Dr. William Potts and Mrs. Helen Pinsent (Board of Control) will open the discussion. Drs. Henry Devine, C. Macfie Campbell (U.S.A.), Joseph F. E. Prideaux, Miss Evelyn Fox (Hon. Secretary, Central Association for Mental Welfare). Drs. W. Norwood East, and R. A. Gibbons will speak under the various heads.

Apparatus for mental tests and an exhibit of work done by mental deficient will be shown in the Pathological Museum. A film illustrating the education of mentally deficient children will be shown by Miss Evelyn Fox in the exhibition on Friday afternoon.

Orthopaedics.

President: Mr. T. H. Openshaw. Vice-Presidents: Messrs. A. S. Blundell Bankart, James Russell. Hon. Secretaries: Mr. W. Martin, 43, Clarendon-road, Southsea; Mr. P. J. Verrall, 116, Park-street, London, W. 1.

Provisional Programme.—July 27th (10 A.M.).—Discussion: The Operative Treatment of Osteo-arthritis. To be opened by Mr. R. C. Elmslie, followed by Messrs. Harry Platt, P. Jenner Verrall, McCrae Aitken, and others. 11.45 A.M.: Papers: Mr. E. Laming Evans: Acute Rachitis in Late Childhood and Adolescence; Dr. Robert Milne: The Prognosis of Legg's Disease of the Hip; Mr. P. Bernard Roth: The Treatment of Fractures of the Lower End of the Humerus; Mr. Naughton Dunn: Congenital Talipes Equinovarus, its Prognosis and Treatment; Mr. T. H. Openshaw: Some Deformities of the Os Calcis.

Venereal Diseases.

President: Sir Archdall Reid. Vice-Presidents: Messrs. David Lees, Kenneth M. Walker. Hon. Secretaries: Dr. Archibald Campbell, 12, Prudential Buildings, Portsmouth; Dr. W. R. Snodgrass, 43, Ashton-terrace, Hillhead, Glasgow.

Provisional Programme.—July 27th.—Discussion: Prevention and Treatment of Chronic Gonococcal Prostatitis and Vesiculitis. To be opened by Mr. Kenneth M. Walker and Dr. David Watson.

Anaesthetics.

President: Dr. W. J. Essery. Vice-Presidents: Drs. H. E. G. Boyle, W. Carling, C. H. Mott. Hon. Secretaries: Dr. R. H. Emmett, The Corner, London-road, Portsmouth; Dr. H. R. Phillips, 2, Cumberland Mansions, Bryanston-square, W. 1.

Provisional Programme.—July 26th.—Papers: Dr. Harold Sington: Anaesthesia for Children; Dr. Arthur L. Flemming: Fatalities from Anaesthetics; Dr. H. E. G. Boyle: Paper and Demonstrations of Apparatus for Administration of Gas, C.E., and Oxygen.

The hon. local general secretary is Mr. C. A. Scott Ridout, St. Elmo, Clarendon-road, Southsea; the assistant hon. general secretary is Dr. E. J. Davis Taylor, 20, Clarence-parade, Southsea.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Amendment of the Sick Club Act.

THE law relating to sick-clubs has recently been amended. The Government had intended a fundamental alteration of insurance laws, but this would have entailed great loss of time, and the financial position of the clubs necessitated immediate assistance. An Act was therefore passed to obviate the more pressing difficulties. The Minister of Labour is thereby empowered to fix the maximum income, receipt of which compels the receiver to belong to a sick-club, but workmen, apprentices, and domestic servants will continue to be compulsory members apart from their rate of wages. At present the maximum income is fixed at M.4,880,000 a year. Members who receive more than this amount must continue to pay contributions for three months. Sick-clubs attached to individual factories and trades are to be licensed only when they contain more than 1000 members, otherwise they are compelled to amalgamate with a local general sick-club. The new law provides that the bottles for medicine given to club patients in the pharmacies belong not to the patient but to the club, and that clubs are authorised to issue regulations to safeguard their property. The General sick-club of Berlin, the largest in Germany, has therefore ordered that every patient receiving medicine has to give security to the chemist to the value of the bottle.

Problem of Decreased Birth-rate.

In a recent lecture delivered before the Berlin Medical Society, Dr. Hamburger stated that the general rate of mortality in Germany had apparently improved since the war, not because of any general improvement of health (the latter having, as a matter of fact, become much worse) but because of a decreased birth-rate. In 1920 the surplus of births over deaths was 10.3 per cent., and in 1921 11.4 per cent., but in the first quarter of 1922 the figure sank to 6.9 per cent. The last quarter of 1920 saw the greatest number of weddings of recent years, so that a record number of births was expected in the third quarter of 1921; but the actual figure was much lower than that customary before the war. Thus the greater part of the population must be presumed to have used means to prevent births. Infant mortality has decreased among children born in wedlock, whilst among illegitimate children it has remained stationary. Obviously a smaller number of children enables the mothers to take more care of each individual child. Infant mortality was at one time higher in Germany than in any other civilised country of Europe, owing, it was commonly stated, to the habit—common among the poorer classes—of overfeeding infants, which often caused severe gastro-intestinal trouble, with choleraic diarrhoea, leading to death. The desire to avoid parenthood has stimulated illegal induction of abortion, which is often followed by puerperal fever. Dr. Hamburger stated that about 5000 women annually die from puerperal fever in Germany, and that about 15,000 more, after having that disease, are left with sexual organs so injured that they are unable to give birth to a child. In the discussion which followed the reading of Dr. Hamburger's paper, Prof. Bumm stated that the majority of cases of puerperal fever were due to illegal abortion. In the gynaecological clinic at the University of Berlin, he said, the number of abortions exceeded that of births. Formerly only unmarried women resorted to the practice, but now about 80 per cent. of miscarriages occur in married women, the reason being the general financial distress of the population and lack of room for more children. The procuring of abortion, apart from medical necessity, was now a crime, but it had been proposed—and Parliament might shortly consider the proposal—that artificial abortion, if performed at the mother's request, by a qualified medical man, should be permitted. The practice of abortion had already spread so widely that it would scarcely be possible to abolish it. Dr. Hirsch spoke of the advantages of rearing a smaller number of healthier children in preference to a larger number, including many unfit to some degree. In his reply, Dr. Hamburger stated that the number of births had considerably decreased during the war in all great cities—e.g., Paris, Moscow, and Berlin, but that everywhere the number had risen afterwards—least in Berlin, and most in Moscow, although artificial abortion was not legally prohibited in Russia. It could thus be performed by qualified medical men, a fact which would greatly reduce the number of deaths from puerperal fever. The only remedy against the decrease of births would be an improvement of the financial condition of Germany.

Organisation of the Universities.

The Secretary of State for Education lately stated before the Prussian Parliament that the organisation of the personnel of the universities, and especially of the Medical Faculties, is to be simplified. Hitherto it has been composed of the following categories: (1) The ordinary professors, having a seat in the faculty, and a vote in elections to the offices of dean of the faculty and rector of the university; (2) extraordinary professors, with a commission to teach certain branches of medicine, who receive a salary apart from lecture fees; (3) extraordinary professors not having a commission, and receiving lecture fees from the students but no salary from the Government

—i.e., the "privat-docents" with no other privilege than that of delivering lectures, although some had the title of professor conferred upon them by the Minister of Education. Henceforth there will be (1) ordinary professors; (2) extraordinary professors, all salaried, and all possessing the right to vote in the elections of dean and rector, these offices remaining open only to ordinary professors; (3) privat-docents, having the right of sending representatives to meetings of the faculty, with a consultative vote. The title of professor will henceforth be reserved to the appointed members of the faculties. Towards the end of the imperial régime the title of "professor" had lost much of its former value in the scientific world, as it was commonly conferred by the Government upon privat-docents, assistants of university clinics and institutes, and even hospital physicians and specialists having no connexion with the universities. The termination of this abuse—as the Republican constitution forbids conferment of a title unless the bearer holds an office—will give a great advantage to the university professors, and will place other medical men under a corresponding disadvantage, as the public will continue to believe that a "professor" must be cleverer than a medical man without that title.

Training of Nurses for Children.

New regulations on the training and examination of nurses for children have been issued by the Minister of Public Health. The training will extend over two years in a children's hospital; only women of at least 20 years of age, possessing a certificate of health and good conduct, will be admitted. Qualified midwives desiring to obtain the certificate will be allowed to undergo a shorter training. The examining board will be composed of a medical officer and two specialists in children's diseases. The examination includes the elements of anatomy and physiology of the human body, the care of healthy and of sick infants, the preparation of food, and the diseases of children, with prophylaxis of infectious diseases, disinfection, and reports to medical attendants. Special stress is laid on the principles of feeding of infants, and on the care of diseases of the gastro-intestinal canal. The candidate must nurse a couple of children for some days to the satisfaction of the examining board, and must make a full report on the cases. Candidates who have passed the examination receive a certificate by which they are allowed to call themselves "qualified children's nurses"; a qualification which may be withdrawn for immoral conduct or unprofessional behaviour.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Correlations Between Syphilis of the Aorta and Syphilis of the Nervous System.

Dr. Frisch, in a recent report to the Medical Society of Vienna on the results of investigations into the combination of syphilis of the aorta and syphilis of the nervous system, stated that he had examined 115 manifest cases of the latter condition, of which 39 per cent. showed distinct symptoms of syphilitic aortitis. In general paralysis of the insane he found 29 per cent., in tabes dorsalis 48 per cent., and in cerebro-spinal syphilis 35 per cent. of cases with aortic changes. It is peculiar that of the whole series only 2 patients complained of subjective symptoms due to this condition; in all other patients the aortitis gave no discomfort. Dr. Frisch thought that this fact was due to a disturbance of the sensibility of the viscera, and that syphilitic aortitis was much less troublesome in itself than the arterio-sclerotic form. He suggested that the chemotropism of the spirochæte was influenced by the cellular make-up of the individual attacked by the disease, so that ectodermal syphilis of the nerves was opposed to mesodermal syphilis of the aorta.

Statistical Data Concerning Cancer.

In the pathological institutes of Vienna exact statistics referring to cancer incidence are being prepared. During the past 10 years cancer was noted as present in 8 per cent. of post-mortems observed there, the ratio of frequency being as follows: intestinal canal, stomach, 30 per cent.; colon, 15 per cent.; oesophagus, 6.5 per cent.; ovaries and uterus, over 15 per cent.; gall-bladder, 6 per cent.; mammae, 5.5 per cent.; respiratory system, 3.5 per cent.; other organs were less frequently affected. Of all neoplasms, over 94 per cent. were cancerous; sarcomata and mixed tumours were not frequent. The cancer incidence has been fairly stable for a number of years, whilst tuberculosis, for instance, shows rhythmic increase and decrease. In recent times, following the increase of early diagnosis and early treatment, the number of unrecognised cases of cancer has been markedly lower, but over 8 per cent. of the cases are still unsuspected by their medical attendants or are at least termed "intercurrent," another disease being regarded as the underlying cause of death. There is apparently a slight progressive increase in the incidence of cancer of the breast and sexual organs in females.

A Secession from the Medical Organisation.

Nearly 100 per cent. of the medical men in Vienna, practitioners and other doctors alike, have hitherto been united in a solid body known as the W.O. (Wirtschaftliche Organisation, or economic union) of Vienna. By strict adherence to a trade-union system, coupled with liberal recognition of the needs of each group in the union, a large number of professional grievances have been abated and numerous advantages have been obtained for members. One of the most notable achievements in this connexion was the securing of the free choice of doctor, to which the Krankenkassen (sick-clubs) of the State railways, of the Municipality of Vienna, and of the Civil Service had to agree, a comparatively satisfactory rate of payment and employment being thus obtained for the profession in general. Now, however, a serious upheaval has occurred and the large group of non-practising hospital assistants and juniors, numbering some 560, have resolved to resign their membership; this break in the solidity of the W.O. is seriously handicapping its work. The trouble arose over a decision of the board of the W.O. to the effect that hospital doctors with full pay should not practise privately, and that no married house physician or house surgeon should be appointed. As the W.O. is chiefly concerned with the economic welfare of its members and private practice is the paramount object of every doctor, this decision is in the nature of protection of the private practitioner from the competition of men not handicapped by household expenses, who are at the same time able to command the use of hospital appliances with no cost to themselves. The hospital doctors, in taking such drastic action, have apparently overlooked the fact that the junior of to-day is the practitioner of to-morrow. Further consideration has already given rise to a counter movement in the seceding section, aimed at re-entry into the union. In order to facilitate this movement a new governing body is to be elected by a fresh system of voting, which will ensure to every group of doctors (i.e., general practitioners, specialists, public health officers, panel doctors, hospital staffs, lecturers, research workers, &c.) a representative on the board. Each section will delegate its own representative and an attempt will be made to reconcile the demands of hospital doctors with general professional needs. Other reasons for secession have also been advanced by several groups of members, chiefly relating to politics, religion, or nationality, but the board rightly insisted on its strictly economic duties, refusing to consider any standpoint other than that of the man in practice, who cannot afford to select his patients according to creed or political convictions.

Anti-Rabies Campaign.

At a recent meeting of the Medical Society Prof. Schnürer read a paper on methods of combating the spread of rabies amongst dogs; fully 93 per cent. of all cases of hydrophobia are due to injuries by infected dogs. Towards the end of the war, and since that time, there has been, apparently throughout Europe, a distinct increase of cases amongst dogs. In Austria during 1921, 228 diseased dogs were reported; this figure rose to 581 in 1922. The rise was due not only to a relaxation of previously strict rules concerning household animals on the Continent generally, but also to an actual increase in the number of dogs. In Vienna, for instance, there were in 1919 about 37,000 dogs kept under licence; in 1922 the figure was 81,000—i.e., 1 dog to every 26 inhabitants. One of the chief means of prevention of rabies is to keep down the number of dogs by means of high taxation and licensing duties. In Vienna any dog found in the street without a special "dog medal" around his neck is liable to capture and destruction by the municipal dog-catcher, and no dog is allowed in the street without muzzle and chain. These two simple rules, if rigidly enforced, are sufficient to produce a rapid diminution of the number of cases of rabies. Compulsory notification of all cases of rabies, whether manifest or only suspect, is very important, and is enforced by law for all animals in Austria; every instance of a person being bitten by a dog, or of the killing of a suspected dog or cat, must also be reported to the authorities. Every suspected animal must be killed at once or kept under observation for four months in a special veterinary hospital. These measures have, of course, proved efficacious in nearly all civilised countries, and in some the disease has been eradicated, but every now and then a relaxation of vigilance, or an act of carelessness on the part of an owner, causes a fresh outbreak.

An Attack on Professional Secrecy.

Dr. Höples, Chief Public Prosecutor in Vienna, recently requested all medical corporations to inform their members that Austrian law requires every practitioner, hospital physician and surgeon, and midwife to inform the police of cases of attempted abortion coming to their professional knowledge. As numerous members of the medical profession had lately failed to comply with the requirements of the law, and as deliberate abortion is a criminal offence, he wished to remind doctors of their statutory duty in the matter. This request aroused unanimous opposition from medical men. The Vienna Aerztekammer (Medical Council) pointed out in a protest that it involved an attempt to abolish professional secrecy, which a doctor is compelled by law to maintain, being forbidden to disclose any knowledge obtained from his patients unless expressly questioned by order of a judge, and then the disclosures can be made only to the judge himself. If every case of suspected abortion was reported every case of hæmorrhage in a woman came under suspicion, and the situation would become impossible. A withdrawal of the order in question was demanded by the Council; a similar stand against its application was taken by the members of the Forensic Society of Vienna, by whom Dr. Höples was invited to open a discussion. The majority of the speakers—medical and legal—wished to leave such cases to the discretion of the doctor, permitting him to decide when a case of abortion was suspicious. During the discussion many who took part advocated a cancellation of the law making deliberate abortion a crime. Nowadays, it was argued, the right to curtail the family should rest with the parents; indiscriminate procreation of weak or sickly children did not tend to improve national health, whilst where there were children already an addition to the family might prove disastrous. Medical men strongly objected to assuming the rôle of police agents, a rôle which might be attributed to them if there was any weakening of professional confidence between themselves and their patients.

June 13th.

CZECHO-SLOVAKIA.

(FROM OUR OWN CORRESPONDENT.)

The Report on Vaccination.

THE law on compulsory vaccination, passed in 1919, has been very strictly enforced and has resulted in the eradication of small-pox in Czecho-Slovakia, but a considerable proportion of the population is strongly opposed to the measure. A number of protests made to Parliament have been handed over to the State Health Council for consideration. The opponents of compulsion ask for a State guarantee for cases where permanent damage or death may result from vaccination; many of the protests, of which the majority come from city councils, ask for the appointment of a joint committee of medical men and opponents of vaccination to study the question. The Health Council approved a resolution rejecting all suggestions contained in the protests, and recommended the organisation by the Public Health Service of a wide campaign of public health education, with special reference to vaccination and to the eradication of small-pox. The Council also opposed a suggested modification of the law on the lines of the present English law.

Social Insurance Scheme.

Dr. Lev Winter is giving a series of lectures in the Institute of Social Sciences, Prague, on the proposed scheme for social insurance (comprising sickness, old age, and invalidity insurance). This scheme was prepared by a special committee instituted for the purpose by the Ministry of Social Welfare, and Dr. Winter is among its most energetic supporters. The political parties upholding the present coalition régime have included social insurance in their working programme, and it is expected that the insurance scheme will be put into effect by Jan. 1st, 1924. The whole project is divided into two parts, one relating to insurance of labour and Civil Service officials, with provision for pensions, the other relating to insurance of small craftsmen and farmers—this latter part of the scheme being not yet completed. The two parts will come before Parliament separately; the Parliamentary Committee on Social Insurance will hold continuous sessions until the necessary work is finished. It was originally intended to include accident insurance also, but later it was decided to separate the latter, which has already existed for a long time, lest the machinery of insurance should become too complicated. The insurance of miners was also excluded, as this class of workers already have a system of their own. The projected scheme covers all wage-earners whose insurance is not provided for by any other means. The unit of organisation will be the political district (with an average population of 60,000 persons); in each district a bureau of social insurance will be created. In these bureaux will be concentrated all the existing small bureaux, which have been largely in the hands of political parties and were often badly managed. District insurance affairs will be controlled by delegates elected by the insured members; these delegates will elect an executive committee to direct the insurance bureau. The members of executive committees will elect and send 20 representatives of insured persons and 12 representatives of the employers to the Central Board of Social Insurance in Prague. Eight members of the Central Board and its chairman will be appointed by the President of the Republic. Payments to insured persons in case of sickness will be practically the same as under the present laws (approximately two-thirds of the member's wage). The projected law lays more emphasis on prevention of disease and on early treatment than on support of the sick member. The latter will be entitled to the invalidity and old age benefit after payment of 200 weekly contributions. Insured persons prevented by sickness from earning more than one-third of their previous wages will be entitled to invalidity benefit,

and those attaining the age of 65 years will receive the old age benefit; both these benefits will begin at 1000 crowns a year (150 Czecho-Slovak crowns equalling £1 sterling). The widows' benefit will be half, and the orphans' benefit one-third, of that sum. Payments will be made, half by the employer and half by the insured person, to the district insurance bureau. The insurance scheme will affect approximately 2,500,000 persons, two-thirds being males. It is anticipated that the scheme will unify sickness insurance and accelerate the development of preventive medicine in the Republic.

A Malaria Census.

The Ministry of Health have published facts relating to the spread of malaria in the Republic, based on the returns of a census especially organised for this purpose. The total number of malaria patients in Czecho-Slovakia was 26,664, of whom only 28 are women and 7 children; 16,345 soldiers contracted malaria during the war outside the territory of the Republic, and only 187 persons contracted the disease within the boundaries of the State. Although investigators detected anopheles in considerable numbers in some parts of the Republic, the facts seem to indicate that malaria was brought into the country by soldiers, and that it will die out automatically.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THREE COUNTY BOROUGHES.

THE following table gives the principal health statistics for three county boroughs, which have the point in common that they are comparatively free from industrial smoke. The death-rates from respiratory diseases, &c., however, are swollen in each case by the increased prevalence of influenza in 1922 when comparison is made with the previous year. The table also gives the principal health statistics of three of the smaller boroughs for 1922:—

Name of district.	Estimated population (mid-year).	Birth-rate.	Death-rates per 1000 of population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality.	Legit.	Maternal mort. in childbirth.
Brighton	135,000	16.9	14.6	1.3	1.8	3.3	61	143	3.5
Croydon	192,300	18.2	12.4	1.1	1.3	2.7	59	170	4.6
Reading	92,990	18.5	12.2	1.1	1.2	2.5	53	133	1.2
<i>Three Smaller Boroughs.</i>									
Ealing	67,890	16.2	11.0	0.7	1.3	2.2	43	255	2.7
Hove	44,110	13.1	14.2	0.8	—	—	39	148	3.4
Tunbridge Wells.	34,360	14.8	14.4	0.9	1.6	2.3	67	193	2.0

Brighton.

Dr. Duncan Forbes reports that during the year the Corporation have completed a desirable suburb at Moulsecoomb by the erection of 278 houses (making a total of 470), and that the first steps have been taken to deal with a small part of a slum area. Private enterprise has only contributed seven new houses during the year. The club-room for male consumptives continues to provide interest and enjoyment for patients under open-air conditions and coincidentally a certain amount of voluntary segregation. Since January, 1921, the midwives have practised the

routine administration of argyrol to the babies' eyes, and during these two years there has been a noteworthy drop in the notified cases of ophthalmia neonatorum. Of syphilis cases, 21 males and 12 females completed treatment during 1922, while 58 males and 26 females ceased to attend during treatment. With the exception of two consultants, no medical practitioners have made application for salvarsan substitutes during the year.

The school report states that the zinc ionisation treatment for discharging ears was introduced during the year and has given successful results. Details of typical cases are given. Of 58 cases treated, 42 were cured. A careful note is made of "tonsil and adenoid" cases before operation, and a note of the condition one year after operation is made for comparison. Of those children suffering from complications, the "year-after" examination showed that cures had been effected in 65.7 per cent. of the deafness, 62.7 per cent. of the otorrhoea, and 40 per cent. of the enuresis. Scabies in the schools is now down to pre-war proportions. The X ray treatment of ringworm continues to give good results. The new hair in most cases is very abundant, silky, and inclined to curl, a fact which gives "intense satisfaction to the parents." The system of examining ringworm contacts has been adopted. Of 181 contacts examined, 59 were found to be suffering, 18 of whom were under school age.

An industrial class for ineducable mentally defectives is run by the Guardianship Society, and it is hoped that a Ministry grant will soon be forthcoming for such classes. Rug-making, needlework, knitting, bead-threading, and drawing are taught. The secondary schools include boys and girls who have had dental treatment whilst at the elementary schools, and it is satisfactory to learn that 53 per cent. of the boys and 51 per cent. of the girls examined at the secondary schools during the year were found to have sound or perfect teeth.

Croydon.

Dr. K. Simpson, acting medical officer of health, reports that housing conditions are, on the whole, better, but that the improvement is slow. He recommends a more general enforcement of the by-laws for houses let in lodgings adopted in January, 1921. The 15 beds subsidised at St. Mary's Maternity Hostel are insufficient and at least 35 to 40 beds are needed. The normal births at the hostel are attended by pupil-midwives under supervision and the abnormal cases by a rota of practitioners. Of the 309 births occurring in the institution only 289 were live births, 10 being viable, and 10 non-viable stillbirths. Midwives attended 45 per cent. of the registered births in the borough, 1655 being live births and 52 stillbirths. Dr. Simpson advocates the provision of dental treatment for expectant mothers and a closer co-operation between the ante-natal and venereal disease clinics. Special weekly clinics for foster-children were instituted in 1921 and massage clinics are held for children suffering from various atrophies, rickets, debility, &c.

Additional tuberculosis visitors are needed to cope with the work of bringing up contacts for examination. During the latter part of the year the available accommodation at the special school for mental defectives proved insufficient, and Dr. Simpson thinks some other provision should be made for the lower-grade cases, who are, at present, a hindrance to the progress of the higher-grade child. A beginning has been made by the provision of a small occupational class for children of too low a grade to attend the special M.D. school. A table is given showing that of 593 milk samples (town and country) examined since 1900, 48, or 8 per cent., proved to be tuberculous. Additional accommodation for the staff is needed at the hospital and also more cubicles for patients with a view to preventing "cross infection."

Dr. Simpson would like to see the practice of giving diphtheria antitoxin in clinically suspicious cases, while the result of the swab examination is being awaited, more generally adopted. The present dental

staff is insufficient to cope with the work. Out of 2129 children referred for treatment, only 914 received treatment. Some more adequate scheme is needed to secure the provision of spectacles for the school-children who are found to need them. Amongst other needs mentioned by Dr. Simpson are the "scrapping" of the older types of school desks and the provision of electrical treatment at the massage clinics, and he includes in his report an extract from a report by Dr. Veitch Clark strongly recommending the establishment of an open-air school and also that the windows of the class-rooms of future schools should be casement windows which will open right back to the wall so as to enable the class-room to be converted into an open-air room when desired.

Reading.

Dr. H. J. Milligan tells us that housing conditions are still unsatisfactory. The census returns show that about 10 per cent. of the houses are occupied by two families. Reading is a town well adapted for the use of shelters for consumptives, and the 33 provided by the Council have all been fully used during the year. The treatment with collosol calcium has been tried on a small scale. The 13 cases treated were all cases who had had considerable hæmorrhages and tubercle bacilli in their sputum. None of them had hæmorrhage after treatment, but in no case did the tubercle bacilli disappear from the sputum.

Dr. Milligan thinks the time has now come when only fully trained nurses should be allowed to qualify as midwives. He estimates that, as the result of the extension of the infant welfare movement, two-thirds of the children in the borough now come under the supervision of the centres. The damage from the seven notified cases of ophthalmic neonatorum was high, one case with corneal nebula, and another with one blind eye, and the remaining eye damaged. There were 253 confinements in the municipal maternity home with no maternal deaths and 5 stillbirths. The staff of midwives delivered 208 and the remaining 45 were attended by the doctor of their choice. Two years' experience have proved the success of the home and the medical arrangements. At the ante-natal clinic it is found that very few of the women are willing to undergo dental treatment. The day nursery has been closed, an investigation having shown that foster-mothers are forthcoming to meet the normal demand.

The farmers in the Reading district specialise in Grade A (tuberculin-tested) milk, and there are now about 20 in the district supplying this class of milk, which is sold in Reading at only 1d. per quart above the price of ordinary milk. The spread of the clean milk movement in Reading is due to the energetic propagandism of the National Institute for Research in Dairying. It is to be hoped there will soon be many more such institutions in different parts of the country.

In his school report Dr. Milligan refers to the "almost complete absence of rickets" and to the great effects to be expected in after years from the attention now given to the teeth of the school-children. He regrets, however, that so many parents do not yet appreciate the importance of early dental treatment for their children.

THREE SMALLER BOROUGHES.

Ealing.

Dr. Thomas Orr reports that scarlet fever and diphtheria have been prevalent throughout the year and that diphtheria caused a death-rate of 0.41. The gross pollution by sewage of the Brent continues, but an improvement is expected when the alterations at the Wembley sewage works are completed. A serious nuisance is caused by a refuse dump at Northolt, outside the borough, owned by one of the metropolitan boroughs, and Dr. Orr makes out a good case for new legislation conferring powers on local authorities to prevent the establishment of such refuse dumps in their districts. Housing difficulties still remain, but good work has been done in improving the older houses. Six cases of lead poisoning in the borough

were attributed to the drinking of beer contaminated by lead-glazed containers. The containers were removed immediately on the discovery of the cause of the outbreak.

In his school report, Dr. Orr states that all cases of adenoids are recommended for operation and cases of enlarged tonsils which suffer from (a) repeated sore throats, (b) repeated colds, (c) obstruction, (d) deafness, or earache, or (e) "winter coughs." Of the cases operated on in past years 57.6 per cent. showed a definite improvement in health, while of those not operated on only 2.2 per cent. showed an improvement. It would be interesting to know in such statistics the exact nature of the tonsil operation and if enucleation is found to give better results than less radical operations. Dental treatment and inspection is very thorough in Ealing. More than two-thirds of all the school-children were inspected and the percentage of "leavers" with sound teeth is now over 70, or about double what it was in 1915.

Hove.

Dr. Augustine Griffith reports that no working-class dwellings were erected in 1922 and that at least 100 are badly wanted. The Council have passed a scheme for 20 more, but they are not yet begun. The water-supply had to be cut off during the evening and night up to June, since when there has been a continuous supply. The new crushers for house refuse have been a success and during 1922 for the first time the refuse has been disposed of without nuisance and with benefit to agriculture. An outbreak of scarlet fever in connexion with a school is attributed to healthy carriers.

Tunbridge Wells.

Dr. F. C. Linton gives the death-rate corrected for age and sex constitution as 12.5. He again draws attention to the unsuitability of the premises in the basement of the health office for use as a maternity and child welfare centre. Owing to this cause antenatal work has not yet been undertaken. The extension of the administrative block of the isolation hospital, sanctioned in 1914, has not yet been carried out. In his school report Dr. Linton says: "The standard of school cleanliness has not been high and has not shown signs of rising during the past ten years." Perhaps Tunbridge Wells is like some other health resorts and the mothers are so taken up with the visitors that they have not time to attend to their own children.

SCHOOL MEDICAL SERVICE.

Kent.

In 1914 the average number of children on the school roll in Kent was 84,707 in 446 schools, compared with 79,683 in 441 schools in 1922. This is attributed to the fall of the birth-rate and to the committee's policy of excluding certain children under 5. There has thus been a marked diminution of the children medically examined, 21,947 children being seen at routine inspection, and 4866 of these being referred for treatment. In addition there were 4657 special examinations and re-inspections. Children excluded by the nurses for uncleanness totalled 1235, against 1219 last year. Altogether 142,620 children were examined by the school nurses, necessitating 2639 nurses' visits to schools, and about 7 per cent. of these children were found to be verminous in different degrees. Dr. Alfred Greenwood suggests that the wearing of hair in plaits would reduce these figures considerably. The cases of enlarged tonsils and adenoids numbered 4429, 1104 of them requiring operative treatment. Twenty-five cases of phthisis were recorded during the year, while phthisis was suspected in 109 cases. Also there were found 65 cases of non-pulmonary tuberculosis. There was a marked increase in the incidence of infectious disease; the total number of closures was 204, compared with 42 the previous year. Influenza accounted for 65, measles 60, and whooping cough 45. Altogether 60 cases of ringworm were treated by X rays with an

average of 60 days between treatment and readmission to school. Of the 193 cases treated by other methods, the average absence was 145 days. Special investigations were held by the assistant school medical officers into (1) the occurrence of goitre in school-children, (2) the practice of breathing exercises in schools, (3) rickets, (4) postural deformities, and (5) water-supply of schools. All these inquiries have elicited interesting information. In one school in the Cranbrook area enlarged thyroid appeared in 20 girls and 8 boys out of a total of 180 children. Among girls of 13 to 14 there were eight cases and four among boys of the same age. Four girls and four boys of 8-9 years of age showed enlargement. Three families accounted for seven of the 20 girls. It was found that the old method of conducting breathing exercises still prevails, the exercise consisting of breathing in through the nose and out through the mouth in the 46 schools examined; handkerchiefs were made use of in only seven schools, and mouth-breathers selected for special examination in only three schools, the reason given being that there was little time available for such action. The shortsightedness of such a policy is very obvious to a teacher with any knowledge of the influence of health on educational results, and it is comforting to reflect that the newest crop of students from training colleges are alive to this. The report on lavatory accommodation in 413 schools is illuminating. The washing accommodation is absurdly inadequate; 29 schools and 10 departments have no washing utensils whatsoever. Yet there is no doubt that the figures are better than in quite a large number of districts, which goes to show how much educational effort is still required in this department of school hygiene.

Eccles.

An open-air school with accommodation for 40 children at Peel Green has now been provided for the borough of Eccles. The premises consist of a large room, 63 by 23½ feet, with a covered verandah in front. The room is closed at night by sliding partitions which run on overhead tracks and which are used in the daytime to divide this large room into four separate class-rooms. The eastern part of the room is used as a dining room, and the two western parts as rest rooms. During class hours the folding beds are stored in the western portion, and the two central rooms are used as class-rooms. Along the north side a corridor runs dividing the class-rooms from the bath-room, kitchen, teachers' room, and store-room on the other side. The bath-room contains three foot-baths with hot and cold sprays, and dressing boxes for six children. Three meals a day are provided—lunch from 9.30 to 10.30 A.M., consisting of porridge with sugar or treacle and milk or bread and milk; a two-course dinner at 12.30 P.M. and tea at 4.30 P.M., consisting of cocoa, bread, butter and jam or bread and dripping. Cod-liver oil and malt, or Parrish's food and cod-liver oil are given after each meal. Breathing exercises are taken twice daily, as also a tooth-brush drill. There is no mention in the time-table of regular bathing. The daily cost of food per head worked out at 9.2 pence; including car fares and cod-liver oil and tooth-brushes the cost was 10.5 pence. Of the total, £197 17s. spent in the seven months since the opening, £166 2s. was refunded by the parents, the full charge being 5s. a week. The number of children examined at routine inspection was 2462, and of these 613 were recommended for treatment, 318 receiving treatment during the year. Dr. J. E. Spence reports that the nurses' routine examination of all school-children twice a year has resulted in a much higher standard of cleanliness. It would seem unfortunate that the lavatory accommodation in the schools is either inadequate, or where adequate, that towels and soap are often not available. Dr. Spence pleads with the teachers to impress upon the children a reasonable standard of personal cleanliness, supplementing lectures on personal hygiene by the simple but effective method of sending them out to wash their hands when necessary.

Correspondence.

"Audi alteram partem."

OPIUM IN SEPTIC PERITONITIS.

To the Editor of THE LANCET.

SIR,—Mr. H. W. Carson's article on the Evolution of the Modern Treatment of Septic Peritonitis, and your editorial on the same subject in THE LANCET of May 19th, raise the question of how the surgeon is to reconcile the adoption of the method of the post-operative administration of opium, which was so recently thought to be disastrous and which is now rapidly gaining favour, with the present conception of the physiology of absorption from the peritoneal cavity. From recent experimental research carried out in the University of Toronto I have demonstrated that in diffuse septic peritonitis there is a fatal absorption through the thoracic duct. This finding explains quite clearly why good results follow the administration of opium. The flow of lymph through the thoracic duct is caused by: (1) respirations—exerting a pumping action on the duct as it traverses the mediastinum; (2) muscular activity—causing an intermittent increase in the intra-abdominal pressure; (3) the suction of the blood-stream in passing the opening of the thoracic duct—a factor hitherto unrecognised.

These are the three main factors, and the action of opium on them is as follows: (1) It slows the respirations, thus diminishing the lymph flow. (2) The abdomen is put at rest; vomiting, which produces a marked increase in the lymph flow, is lessened. (3) The blood-stream is slowed and the suction on the duct is reduced to a minimum. The beneficial action of the Murphy method of treatment may also be explained in the light of this new conception of the physiology of absorption from the peritoneal cavity and the lumen of the bowel.

Shortly after the research referred to was done I drained the thoracic duct in a girl of nine suffering from pneumococcic peritonitis, and she made a very pleasing recovery. Attention is drawn to this phase of peritonitis in the hope that the acceptance of the principle may lead to the formation of a better method of treatment of septic peritonitis.

I am, Sir, yours faithfully,

Toronto, June 4th, 1923.

WM. A. COSTAIN, M.B.

TOXIC SYMPTOMS FOLLOWING THE ALKALINE TREATMENT OF PEPTIC ULCER.

To the Editor of THE LANCET.

SIR,—In view of the fact that I have for several years been a strenuous advocate of the medical treatment of gastric and duodenal ulcer in preference to surgery, I think it only right to draw attention to the possibility of toxic symptoms arising as a result of using very large doses of alkalies. Sippy, who was the first to recommend this treatment with the object of completely neutralising the acid of the gastric juice, has not referred in any of his papers on the subject to the toxic symptoms which may result. In a recent paper from the Mayo Clinic, Hardt and Rivers¹ describe the toxic symptoms which may develop in cases in which it is impossible to neutralise the acid completely. The patient is at first unduly introspective and nervous. He then complains of difficulty in taking his milk. After a time headache, nausea, and vomiting occur. The patient becomes apathetic and drowsy, and in one of their cases death ensued. In every instance the urea in the blood became greatly increased, and albumin and casts appeared in the urine. In some there was evidence of kidney disease before the symptoms developed, and in the fatal case definite

¹ L. L. Hardt and A. B. Rivers; Arch. Int. Med., xxxi., 171, 1923.

chronic nephritis was found. I have met with three similar cases in private patients, though none in hospital, during the last three years. In one case the patient had only one kidney and this was affected with pyelitis. In the other two patients a moderate degree of pyloric obstruction was present and there was an extreme degree of hypersecretion. In one of these death occurred in spite of the early cessation of the alkaline treatment. The urea content of the blood was greatly increased in all three cases.

It is impossible at present to say what is the cause of the toxic manifestations. But it seems clear that no case in which the kidneys are diseased should be subjected to the full alkaline treatment, and the same is true when partial pyloric obstruction is present in spite of Sippy's advocacy of the treatment in such cases. If any suspicious symptoms develop, a blood-urea estimation should be made and the treatment discontinued until it is ascertained whether it is excessive; in that case the treatment should be modified.

For ulcers associated with renal disease treatment by diet, olive oil, and belladonna in the manner I have described, with only small doses of alkalies, may give sufficiently good results, but if pyloric obstruction is present, even in a mild degree, it is probably wise to recommend gastro-enterostomy without further delay.

I am, Sir, yours faithfully,

ARTHUR F. HURST.

New Lodge Clinic, Windsor Forest, June 17th, 1923.

TREATMENT OF HÆMORRHOIDS.

To the Editor of THE LANCET.

SIR,—Mr. R. M. Rowe's article on hæmorrhoids in THE LANCET's series on Modern Technique in Treatment contains so much that is excellent, and summarises the subject of the symptoms and diagnosis of hæmorrhoids so clearly, that I trust it will not be considered churlish on my part to offer a few criticisms with reference to what he has written about the treatment of internal hæmorrhoids—especially the treatment by means of injection.

Mr. Rowe deals at some length with the palliative treatment of internal hæmorrhoids, and includes under that heading a method involving a week's rest in bed, special diet, and general and local medication. Now, palliative treatment implies that symptoms only are dealt with, and that the underlying pathological condition is not removed. All that the rather heroic palliative treatment, which Mr. Rowe suggests, can accomplish is to control hæmorrhage temporarily. Considering that treatment by means of injection not only produces immediate cessation of both bleeding and prolapse, but ultimately effects a permanent cure of the hæmorrhoids in the large majority of cases, and that this treatment—contrary to what Mr. Rowe hints—is applicable not only to the earliest cases but also to the most severe, I think it questionable whether it is ever justifiable to condemn a patient to a week's confinement to bed without at least explaining to him the advantages of the treatment by means of injection. By this means his piles can be permanently cured without any absence from business and without the use of unpleasant and messy local applications.

Mr. Rowe would limit the scope of the treatment by means of injection to such cases as present a single pile mass, which only occasionally prolapses from the anal orifice. I suspect that the explanation of this limitation on his part is that his idea of the effects of injection is radically erroneous. He—like many others—appears to believe that injection of a 20 per cent. carbolic solution produces thrombosis of the pile treated. As a matter of fact, thrombosis very rarely occurs, and, when it does, it is due to faulty technique. The actual effect of injection is to produce a rapid effusion of lymph into the sub-mucous tissue of the pile; this subsequently becomes organised and contracts, thereby obliterating the vessels of the pile and producing adhesion between the mucous and muscular layers. Thrombosis, if it

occurs, results from the use of too strong a solution or from using too much. It is evidenced by severe and long-continued pain, which completely cancels the chief advantages of this method of treatment. When I have stated that I have had only one definite instance of thrombosis amongst some 3000 to 4000 cases, I have said enough to show the great rarity of this accident in a long series of cases treated by injection. "Septic thrombosis" I have never met with. Mr. Rowe gives the oft-repeated advice that only one pile should be treated at a time, and seems to be under the common delusion that two injections for each pile are likely to suffice. I fear that, if his directions in this respect are followed, the treatment will fall into disfavour, because recurrence will be the rule rather than the exception. My own practice is to inject as many hæmorrhoids as can be brought into view through a Kelly's speculum at the first sitting, and to repeat the process at intervals of a week until all visible traces of the hæmorrhoids have disappeared. I find that the average number of injections necessary to effect this is four; in some cases three are sufficient, whilst others may need as many as six. During the whole of the treatment rest in bed is unnecessary, and there need be no interference with either business or pleasure, beyond the avoidance of strenuous exertion on the actual days of the injection. Meanwhile no ointments or suppositories are required.

My technique was described in an article in THE LANCET for March 18th, 1916, and my results were summarised in an article published in the *Practitioner* last July. I am, Sir, yours faithfully,

ARTHUR S. MORLEY, F.R.C.S.

Gordon-square, W.C. 1, June 16th, 1923.

DELAY IN GIVING DIPHTHERIA ANTITOXIN.

To the Editor of THE LANCET.

SIR,—May I aid in supporting the above appeal, so properly put forward by Dr. F. F. Caiger in your issue of June 9th, by quoting the following extract from page 490 of my report on the health of the Borough of Croydon during 1922.

"Fatality in diphtheria may be said in practically all cases, except the toxic variety, to be determined by the length of time allowed to elapse before the giving of antitoxin. Were the practice prevalent of giving no more than 2000 units antitoxin whilst awaiting the result of a swab in any clinically suspicious case, the present mortality of the disease would undoubtedly tend to be diminished. The nasopharyngeal type of case which tends to the greatest fatality further seldom requires confirmation bacteriologically."

Were the practitioner able to see all cases of alleged diphtheria, have them confirmed or otherwise bacteriologically, and, if necessary, removed to hospital within the first 24 or even 36 hours of the onset of the disease, no great harm might probably result. This, however, is exactly what does not always happen.

That suspicious throats should be sent into hospital for diagnosis, as suggested by one of your correspondents as a matter of course, is to use the fever hospital for a purpose for which it was never intended on any general scale, not to mention the additional expense thereby involved, the unnecessary trouble caused to prevent cross infection, and the occupying of beds, it may be, required for actual cases of diphtheria awaiting admission, and probably their only opportunity of obtaining antitoxin. If antitoxin be given as a routine measure in all reasonably suspicious cases clinically resembling diphtheria, a heavy item in the present case mortality of the disease would be removed, an item whose removal at present is almost entirely in the hands of the general practitioner. The occurrence of anaphylaxis, to be expected in only some 5 per cent. of cases, is not a difficulty of sufficient magnitude to be more than seriously considered when the possible reduction of the death-rate in diphtheria is at stake.

I am, Sir, yours faithfully,

Public Health Department, Town Hall, K. SIMPSON.
Croydon, June 18th, 1923.

To the Editor of THE LANCET.

SIR,—As a panel practitioner in a working-class district I sympathise very much with Dr. F. F. Caiger's suggestion (THE LANCET, June 9th) to administer antitoxin in all suspected cases of diphtheria. I do not follow the practice myself as a rule, though I do occasionally where I think the circumstances warrant it. I generally follow the alternative course of sending the child away direct to a M.A.B. hospital if I strongly suspect, but am not sure, of the diagnosis of diphtheria. I think it is probable that the death-rate from diphtheria will be materially lowered if antitoxin in sufficient doses were given as a routine practice in every case of suspected diphtheria. No doubt in some instances it would be difficult to overcome the prejudices of the parents, but diphtheria is feared so profoundly, and rightly, by the working people in industrial districts that there would be no difficulty if the doctor had made up his mind to adopt the practice as a routine. In districts like Bermondsey—and I believe elsewhere in London—the serum can be obtained gratuitously at the town hall, and I personally always keep a stock in hand obtained in this way. I do not think that there is any risk of anaphylaxis, because I understand that the highest authorities agree that repeated injections can be given, daily or at intervals up to ten days from the first injection, without invoking anaphylaxis. The suggestion has been made to appoint a consultative M.A.B. officer for throats, but I hardly think such an appointment would be of much value, as in the cases that turn out serious very often no possible diagnosis can be made by inspection or by clinical signs alone until it is too late.

On the whole I agree with Dr. Caiger. There are two alternatives before the doctor: (1) Send any case that may possibly turn out to be diphtheria into hospital the moment it is first seen, or (2) give it 6000 or 8000 units of antitoxin instantaneously, and await results of bacteriological investigation of the swab.

I am, Sir, yours faithfully,

June 19th, 1923. ANOTHER PANEL PRACTITIONER.

IN MEMORY OF JOHN CHIENE.

To the Editor of THE LANCET.

SIR,—As Prof. G. L. Gulland wrote in THE LANCET last week, time spent with John Chiene is a happy memory to many of his old students. I arrived in his wards in the Old Infirmary in the summer of 1879, silly in going to the wards before I knew any anatomy, but there were others as foolish. Mr. Chiene soon discovered there were some of his following who knew nothing of anything, and in particular that we had no idea of the great new principle of antiseptics in surgery. Shocked and full of pity, he assembled us infants in his wards for half a dozen lectures half an hour before the ordinary ward visits, determined that, though we were only paying for our infirmary tickets and paying nothing to him, we should at least not be wasting all our time. "To get a grip of principles, and to learn . . . to draw conclusions from his observations," Prof. Gulland truly says, was the object of his teaching, as it was also of the Edinburgh School, with the result that students who went through the school then were less slaves to authority and "the books" than others. The individual point of practice I most clearly trace back to Chiene is the use of elastic wove bandage and cotton-wool in the immediate treatment of black-eyes and sprains; most valuable and never noticed in print since, so far as I have seen, except by Mr. R. H. A. Whitelocke, of Oxford. A patient of mine sprained his ankle at 5.30, at 6 it ached, at 6.30 it had swelled, he could not put his foot to the ground and could not dine in mess. Hot water, cotton-wool, and elastic bandage, applied and re-applied, fixed him so that he bicycled 40 miles next day to an eagerly anticipated party. He was very grateful, but his gratitude was due to John Chiene.

I am, Sir, yours faithfully,

Waterlooville, June 18th, 1923. W. E. HOME.

FIBROMA OF THE OVARY.

To the Editor of THE LANCET.

SIR,—The account of a case of fibroma of the ovary with a summary of the literature by Dr. Ambrose W. Owen in your issue of June 16th, will be read with interest by all surgeons who have to deal with such.

I operated recently on a woman aged 73, who was sent into hospital by Dr. A. P. Walters, of Burgh-by-Sands, on account of an ovarian tumour he had previously tapped. Examination per vaginam detected a firm, hard mobile tumour joined to an ovarian cyst of the dimensions of a large football. The hard mass distinctly suggested a fibroid. The cyst proved to be multilocular, was free from adhesion, and turned out easily enough, but incorporated with its base was a fibroma about the size of a tomato. There was a broad connexion between the cyst and the fibroma and the latter had a rather long pedicle, whilst the broad ligament was opened up as far as the appendix region. It was obvious to those present that a fibrous tumour had been removed along with the cyst, and I halved the growth and sent a portion to Mr. Richard Muir, of Edinburgh, for examination, who wrote: "It is a very typical fibroma composed of well-formed fibrous tissue." This verdict was subsequently confirmed by Prof. S. G. Shattock.

The point of interest is the exact origin of the fibroma which at no point was attached to the uterus. Mr. Alban Doran, who also saw the specimen, considered that the fibroma arose from the utero-ovarian ligament. Dr. Owen's paper indicates how seldom such fibromas are met with in the experience of surgeons who operate upon hundreds of cases of ovarian disease. In his case there was abundant ascites and the tumour weighed 19½ lb., whereas in mine the tumour was small and there was no free peritoneal effusion. The patient's recovery was uneventful.

I am, Sir, yours faithfully,

H. A. LEDIARD,

Surgeon to the Cumberland Infirmary.

Carlisle, June 17th, 1923.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council held on June 14th diplomas of Fellow were conferred on the following 24 candidates out of 91 candidates who presented themselves at the recent examination:—

W. Anderson, Aberdeen; H. A. Brookes, Edinburgh University and London; A. G. Bryce, Manchester and St. George's; C. Hope Carlton, Oxford and St. Mary's; G. R. E. Colquhoun, Cambridge and St. George's; D. I. Currie, Leeds and London; F. P. Fouché, Edinburgh and Guy's; G. J. Gillam, Toronto and St. George's; W. J. Lytle, Belfast and London; N. Makar, Cairo and St. Thomas's; P. J. Moir, Glasgow and London; J. W. G. Phillips, St. Mary's and London; J. McL. Pinkerton, Glasgow and St. Bart's; J. E. Purves, Edinburgh; S. D. Rhind, St. George's; W. Salisbury, Bristol and London; R. S. Scott and W. Shaw, Cambridge and St. Bart's; N. R. Smith, Sydney and Guy's; G. F. Syme, Guy's; D. R. Wheeler, Belfast and London; E. R. Wheeler, King's College; R. L. Williams, Cambridge and St. Bart's; and S. H. Woods, Dublin, London, and Guy's.

Licences in Dental Surgery were conferred upon the following 76 candidates:—

G. W. Aaronson and E. J. Anderton, Royal Dental; D. J. Andrews, Bristol; G. Armytage, Royal Dental; L. Ayliffe, Manchester; Caroline W. Bailey-King, Royal Dental; H. P. Baylis, Guy's; A. W. Bell, C. A. Bennett, and P. Bentley, Royal Dental; J. V. Bingay, Guy's; F. R. Boetius, London; W. L. Boness, Guy's; W. R. B. Booth, Manchester; W. J. Buttle and F. R. Christian, Royal Dental; J. W. Clark, Durham; D. G. Comber, Royal Dental; F. Crone, Guy's; J. W. Curley, Royal Dental; A. S. Davies, Guy's; A. C. Deverell and G. S. Dingley, Royal Dental; G. B. Drury, Birmingham; S. J. du Plessis and J. U. H. du Preez, Royal Dental; G. A. Edwards, Leeds; R. Edwards, Guy's; C. Fletcher, H. G. L. Fletcher, A. T. S. Fourie, and H. A. S. Gaffyne, Royal Dental; W. Gardner, Sheffield; P. N. Gibbs, Birmingham; A. S. Gosling, Royal Dental; H. Haines, Birmingham; H. D. Hall, Guy's; G. M. Hay, Royal Dental; E. V. Hayes and F. L. Haynes, Guy's; L. H. Head, Durham; J. Hegarty, Liverpool; W. A. Linnell, Manchester; T. G. Lloyd, Guy's; A. C. Maguire and I. Mann, Royal Dental; C. B. May,

Birmingham; R. N. Merrett, London; R. Milburn and E. W. Pedley, Royal Dental; H. L. Pitt, University College; C. Pratelli, Royal Dental; L. F. L. Pringle, Durham; W. N. Reynolds, London; J. B. Roberts and V. R. Roberts, Guy's; Gladys M. Seal, Royal Dental; P. B. Sharp, Royal Dental; J. E. B. Smith, Guy's; C. R. Smitheringale, Royal Dental; L. Smuts, London; M. R. Somers, Royal Dental; E. L. Sprong, Guy's; F. J. Stay, H. C. Steyn, H. P. Sutcliffe, Janet H. M. Sutherland, D. R. Sutton, and L. A. Trace, Royal Dental; J. L. T. Urquhart and F. N. Van der Pant, Guy's; and I. M. van Dockum, V. M. Wallis, J. W. Watts, H. J. V. Webster, and S. Winer, Royal Dental.

The following were elected examiners:—

Board of Examiners for the Fellowship: Mr. W. Wright, London Hospital. Second Examination of the Conjoint Board: Mr. H. A. Harris. Final Examination of the Conjoint Board, Midwifery: Dr. D. W. Roy.

A letter was read from Mr. F. F. Burghard, King's College Hospital, resigning his membership of the Court of Examiners. —The President reported that a vacancy would be occasioned by the retirement of Mr. Norman Bennett from the Board of Examiners in Dental Surgery.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—Dr. T. W. Naylor Barlow, of Wallasey, has been elected president of the society for the session 1923-24. He will be installed on Oct. 19th, and will preside at the annual dinner of the society on the evening of the same day.

LONDON HOSPITAL MEDICAL COLLEGE.—A lecture on the Stomach from the Radiologist's Standpoint will be given by Dr. G. E. Vilvandré on June 28th, at 4.15 P.M., in the Anatomical Theatre of the College. The lecture is intended for senior students of the hospital and post-graduates.

PADDINGTON TUBERCULOSIS DISPENSARY.—The annual meeting will be held at the Town Hall, Paddington, on Monday, June 25th, at 8.30 P.M. The Mayor of Paddington will preside and Sir Robert Philip will be the principal speaker. After the business of the meeting has been transacted a film entitled the Story of John McNeill will be shown.

NATIONAL COUNCIL OF TRAINED NURSES OF GREAT BRITAIN AND IRELAND.—At a meeting held at the club of the Royal British Nurses' Association, 194, Queen's-gate, London, S.W., on June 14th, a presentation was made to Mrs. Bedford Fenwick, President of the Council, of a bound and inscribed copy of the first Statutory Register of Nurses, in recognition of her services to the nursing profession.

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.—A meeting of the Executive Committee of this society was held on June 14th under the chairmanship of Lord Willoughby de Broke. The following resolution was carried unanimously:—

"That the Executive Committee accepts the Trevethin Report as a document supporting the essentials of the policy of the Society for the Prevention of Venereal Disease, as defined in their policy pamphlet, and especially welcomes the recommendation 'that the law should be altered so as to permit properly qualified chemists to sell ad hoc disinfectants, provided such disinfectants are sold in a form approved, and with instructions for use approved by some competent authority,' as set forth in Clause 14 of the Report."

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—General refresher courses and special courses in cardiology, children's diseases, dermatology, and ophthalmology have been arranged by the Fellowship of Medicine during July and August. Copies of the syllabus of each course and tickets of admission can be obtained from the secretary to the Fellowship of Medicine, at 1, Wimpole-street, London, W. The special course in neurology, to be given at the West-End Hospital for Nervous Diseases from June 25th to July 27th, will include clinical work in the out-patient department and special lecture-demonstrations dealing with the diagnosis and treatment of common nervous disorders.

EPSOM COLLEGE: "FRANCE" PENSIONS.—The Council will shortly award several "France" pensions of £30 a year to medical men. Candidates must be not less than 55 years of age, and their income, independent of any allowance from the College, must not exceed £100 a year. The Council will also award one "Grewcock" pension of £50 a year. In this case there is no limitation as to age, but candidates must be legally qualified medical men who have retired from professional work, and who, in the opinion of the Council, are in need of the pension. There is the same income-limit as in the case of "France" pensioners, and special consideration will be given to the claims of candidates having association with Worcestershire, Lincolnshire, or Carmarthenshire. Forms of application can be obtained from the secretary, Mr. J. B. Lamb, 49, Bedford-square, London, W.C. 1.

ROYAL LONDON OPHTHALMIC HOSPITAL.—It has been decided that women shall be eligible for election to the Committee of Management, and Lady Cooper and Lady Lister have been duly elected to serve as members of the committee.

THE LATE DR. F. P. FERRAN.—The death took place last week of Dr. F. P. Ferran, who was at the time a prisoner in the internment camp at the Curragh. Death was due to pneumonia. He was a native of the North of Ireland, and was educated at Queen's University, Belfast, where he took his medical degrees in 1910. He was medical officer of Foxford, county Mayo, and a member of Dail Earrann for the united constituency of Sligo and East Mayo. He voted against the Treaty, and was believed to have taken an active part in hostilities on the Republican side.

CREMATION SOCIETY.—The Transactions of the Cremation Society of England, No. XXXIV., is an important document, containing not only the report of the council and the balance-sheet but the proceedings of a conference of cremation authorities presided over by Sir Malcolm Morris at the Guildhall, London, on Oct. 26th, 1922. Among the questions discussed at this conference were the substitution of cremation for burial, the best means of spreading information on the subject, and the doctor's fee for the medical certificate. As Dr. Chalmers Mitchell forcibly pointed out at this conference, "The dead are very much more numerous than the living, and every year they are getting more and more numerous, and the living cannot afford the present arrangements." During 1922 the number of cremations which took place in Great Britain was 2009, or 87 more than in 1921, but in the provinces there has been a decrease. The Transactions also contain notes on various cremation societies, a list of British crematoria, the steps to be taken in order to arrange for cremation, and other useful information, and is published at the offices of the society, 52, New Cavendish-street, London, W.1 (price 1s. 6d. post free to non-subscribers).

ST. THOMAS'S HOSPITAL: NEW LABORATORY.—On the occasion of the prize distribution on June 13th the new laboratory, the gift of the Dunn trustees to the hospital, was declared open by the Marquis of Cambridge. During the proceedings Sir Walter Fletcher, F.R.S., gave a description of the laboratory, and spoke of the work done in the former laboratories, particularly that valuable work relating to trench nephritis which had proved so useful during the war and in relation to the results of kidney disease generally. Another more recent development of the same work had notably increased the safety of certain kinds of surgical operation; at the present time the biochemical laboratory was engaged in chemical work which the insulin treatment of diabetes rendered necessary. The work of the biochemical laboratory was, however, hampered by an artificial regulation whereby animal experiments might be performed in the medical college, but not in the hospital. Sir Jeremiah Colman, on behalf of the Dunn trustees, asked acceptance of the laboratory. He explained that Sir William Dunn, a successful South African merchant, had appointed the directors of the Commercial Union Insurance Company to distribute the trust money. This money was now either exhausted or ear-marked, but he wished the hospital to accept a further £5000 for scientific instruments. Sir Arthur Stanley, treasurer, cordially accepted the gifts on behalf of the hospital.

LIVINGSTONE COLLEGE, LEYTONSTONE.—Commemoration day was held at the college on June 13th, Sir Leonard Rogers, F.R.S., being in the chair. Short statements were made by the Principal, Dr. Tom Jays, and the Treasurer, Mr. R. L. Barclay, as to the work of the past year, and the financial position of the college, it being pointed out that if a sufficient number of students were sent to the college regularly there would be no need to appeal to friends for financial support. An urgent appeal was necessary, however, in order to enable the work to be carried on until the number of students should be so increased as to make the college self-supporting. About £500 is needed before the end of the current financial year. Sir Leonard Rogers said that he felt the work of Livingstone College was more needed than ever at the present time, owing to the shortage of medical men and women working in the mission field. To his mind the most important work of Livingstone College was to train these missionaries in looking after their own health when they went out to distant parts of the Empire, where they often lived far from medical aid, and for want of the knowledge they could gain in a few months they often sacrificed health. "Another great feature of this work," he said, "is that all those who go through the training here are able to treat a large proportion of the ailments of these people and able to show the Gospel to them in a way they could not otherwise do." Sir Leonard Rogers referred particularly to leprosy; he felt strongly that if missionaries

who were going out to work amongst lepers were sent to be trained at the college it would be very beneficial in helping to carry out the cure of leprosy. He spoke of the problem of segregation and prophylaxis, and the difficulties in carrying out these measures. When that could be done an enormous advance would be made. Mr. J. M. Brand, an old student of the college, who has been working in South India as a missionary of the Strict Baptist Mission, described the benefit of the training, as regards the ability given to missionaries to take care of themselves and of their native workers in unhealthy places and as regards the confidence with which it enabled them to go about pioneer work. Mr. T. L. Suffill, another former student, now of the Sudan United Mission, home on furlough from Nigeria, also told of the great value of the knowledge he had gained as a student at the college.

THE LATE MR. A. McDONNELL.—Mr. Alexander McDonnell, who died on June 14th, was medical officer of Stamford Hill and St. Michael's Maternity and of the Stoke Newington District Post Office, and well known as a practitioner in the North of London. He qualified L.S.A. in 1884 and took the L.R.C.S. Edin. and L.M. in the following year. He was President of the Four Provinces of Ireland Club.

CANCER CHARITY, MIDDLESEX HOSPITAL.—The report of this charity for the year 1922 shows that at the beginning of the year 76 patients were under treatment in the wards, while during the 12 months 513 patients were admitted and 86 remained at the end of that period. In the previous year the number of admissions were 505. The average daily bed occupancy was 86.13 as compared with 85.74 for 1921, and the average length of stay was 62.37 days as compared with 60.65 in the previous year. Each in-patient cost on an average £4 4s. per week, a decrease of about 3s. 6d. in the previous year's average. In the out-patient department there were 191 new cases treated and the attendances numbered 708. In 1921 the figures were respectively 234 and 789. The average cost for each out-patient was £1 2s. 4d., the cost during 1921 being 19s. 2d. The income and expenditure account shows an increase of £428 in the ordinary income (from £15,758 to £16,186), while the extraordinary income which included special grants from the Voluntary Hospitals' Commission and preliminary grants from Combined Appeal Fund rose from £2850 to £4437. The subscriptions for 1922 amounted to £1530 as compared with £1191 in 1921.

IRISH FREE STATE. ARMY MEDICAL SERVICE.—Our Dublin Correspondent writes: Until the recent statement made by General Mulcahy, Minister of Defence, regarding the Army Medical Service, no public information had been given as to the amount of control exercised by the Army medical authorities in the matter of appointments to the Army Medical Service. There had been some uneasiness lest political considerations were being allowed to weigh against professional competence. General Mulcahy's statement, however, was thoroughly reassuring. He said that the Director of Medical Services was appointed by the Minister, and was solely responsible for the efficiency of the Service. All appointments were made with Ministerial sanction on the Director's recommendation. General Mulcahy, giving further details regarding the Army Medical Service, stated that the commissioned ranks at present consisted of 86 lieutenants, 45 other commissioned officers, 15 probationers, 17 dentists, and 30 nurses, together with the headquarters' establishment. The Minister took the opportunity of expressing the gratitude of the Government to Dr. Maurice Hayes for his admirable work in organising a medical service with great rapidity in a time of exceptional difficulty.

MEDICAL GOLFING SOCIETY.—The annual summer meeting was held at Addington Golf Club on June 14th. Over 90 members competed for various prizes, all competitions being against bogey. H. D. Gillies (+2) won THE LANCET Challenge Cup and memento for the best scratch return (4 up); also the Henry Morris Challenge Cup and society's gold medal for best handicap return with 2 up. Other results were as follows:—Class 1: Handicaps 9 and under. 1st prize, Sir Richard Cruise (2), 1 up (H. D. Gillies with return of 2 up being ineligible for this prize). 2nd prize, Jocelyn Swan (6), G. Dawson (4), Gordon Lane (9), Sir K. Goadby (8), tied with all square. Best last 9 holes: Sir K. Goadby and Gordon Lane, tied with all square. Class 2: Handicaps 10 and over. 1st prize, C. M. Hinds-Howell (10), J. Cuning (12), N. B. Benjafield (16), H. L. Hatch (15), J. Clarke (14), tied with all square. Best last 9 holes: J. E. Coulson (11), L. Bathurst (11), tied with 1 up. Foursome-sweepstakes: 1st prize, Bruce Hamilton (12), and G. A. Sutherland (6). 2nd prize, Sir R. Cruise and Gordon Lane tied with C. R. Salisbury (16) and C. H. Housden (18), and with J. S. H. Lewis (8) and Murray Thomson (10). All ties will be played off in due course.

WE regret to announce the death on June 19th of Dr. Walter d'Este Emery, soon after his retirement from his position of Director of Laboratories at King's College Hospital.

Joseph Harvey Kemp Sykes, L.M.S.S.A., has been made an Honorary Associate of the Order of St. John of Jerusalem.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION.—The annual meeting will be held at 1, Upper Montague-street, London, W.C. 1, on Thursday, June 28th, at 4.15 P.M., Sir Arthur Newsholme, the President, in the chair.

CALEDONIAN MEDICAL SOCIETY.—The thirty-eighth annual meeting will be held in the Aberdeen Medico-Chirurgical Society's Hall on Friday, June 29th, at 2.30 P.M., under the presidency of Dr. David Rorie. The annual dinner will take place the same evening at the Palace Hotel, Aberdeen.

SMALL-POX IN ENGLAND AND WALES.—During the week ending June 9th 58 cases of small-pox were notified in England and Wales, the distribution being as follows: Derbyshire 6 (Heanor 5; Clown R.D. 1), Durham 4 (Stockton-on-Tees), Gloucestershire 35 (Gloucester 26, Cheltenham 1, Cirencester 1, Stroud 1, East Dean R.D. 1, Lydney R.D. 1, Stroud R.D. 4), Nottinghamshire 4 (Nottingham 1; Basford R.D. 3), Yorks North Riding 2 (Middlesbrough), Yorks West Riding 2 (Doncaster R.D.), Glamorgan 5 (Cardiff). Since then, apart from the epidemic in Gloucestershire and environs, 10 new cases are reported from Middlesbrough.

DEATH OF MR. CLAYTON FOX.—We regret to announce the death, which occurred suddenly on June 13th from heart failure, of Mr. Hugh Clayton Fox, F.R.C.S.I. For many years assistant surgeon to the Metropolitan Ear, Nose, and Throat Hospital, he was at the time of his death aural surgeon in the Ministry of Pensions and chief assistant in the throat department of the Brompton Hospital for Consumption. A student of the Middlesex and Charing Cross Hospitals, Mr. Fox qualified in 1888, taking his F.R.C.S.I. some years later. He published in 1919 a translation of Dr. Georges Laurens's "Oto-Rhino-Laryngology," a book famous for its excellent elementary teaching, and a second edition was soon demanded. His special interest was in tinnitus aurium. A man of handsome presence and courteous manner, his colleagues and many friends will deplore his sudden and untimely end.

OXFORD OPHTHALMOLOGICAL CONGRESS.—The fourteenth annual meeting of the Congress will take place on July 5th, 6th, and 7th. On July 5th, at 10 A.M., in the Department of Human Anatomy of the University Museum, the Congress will be opened by the Master, Mr. Sydney Stephenson, and a discussion on the Relationship of Dental Sepsis to Diseases of the Eye will then be opened by Mr. W. R. Ackland (Bristol) and Mr. W. Lang (London). The following will take part in the discussion: Dr. T. Harrison Butler (Leamington Spa), Prof. J. Van der Hoeve (Leiden), Dr. S. Lewis Ziegler (Philadelphia), Mr. P. H. Adams (Oxford), Dr. Harold Gifford (Omaha), Mr. N. C. Ridley (Leicester), and Miss M. Gilchrist (Glasgow). The annual general meeting will be held at the conclusion of the discussion. At 2.30 P.M. papers will be read by Lieut.-Colonel H. H. Herbert (Hove) on the Pectinate Ligament and its Connexions; Dr. C. F. Bentzen (Copenhagen) on the Making of the Conjunctival Flap in Elliot's Operation; Dr. H. Gjessing (Drammen) on Clinical Examination of Fistulæ or Filtering Scars after some operations—especially after Holth's iridencleisis with iridotomy; Dr. Harrison Butler on the Organisation of Ophthalmic Clinics and Hospitals. The annual dinner of the Congress, at 7.45 P.M., will be held in the Hall of Keble College. On July 6th, at 10 A.M., in the Department of Human Anatomy, Dr. Sanford R. Gifford (Omaha) will speak on Intra-cisternal Injections in the Treatment of Luetic Optic Atrophy, followed by Dr. K. Lundsgaard (Copenhagen) on Finsen Treatment of Conjunctival Diseases. At 11 A.M. the Doyne Memorial Lecture will be delivered by Mr. H. Moss Traquair on the Differential Characters of Scotomata and their Interpretation. At 12.15 P.M. Prof. J. Van der Hoeve will offer Further Observations on Eye Symptoms in Tuberosc Sclerosis and in Recklinghausen's Disease. At 2.30 P.M. Mr. Rayner D. Batten (London) will discuss (1) the Importance of Fundus Drawings in Clinical Ophthalmology, with Illustrations from Studies of Ophthalmic Draughtsmen. Mr. John D. Batten (London) will contribute a paper on Memory Drawing in Relation to Ophthalmic Drawing, and Prof. Van der Hoeve and Dr. Harrison Butler will speak on Accommodation and on Muscle Recession and Muscle Tucking respectively. At 5.30 P.M. a visit will be paid to the Pitt Rivers Museum. On July 7th, at 10 A.M., in the Department of Human Anatomy,

Mr. R. J. Coulter (Newport, Mon.) will open a discussion on the Diagnosis of Coal-miners' Nystagmus, and Dr. T. Stewart Barrie (Glasgow) will contribute a paper on Colour Vision in Amblyopic Eyes Associated with Strabismus Convergens. In the Scientific Museum Dr. S. Lewis Ziegler (Philadelphia) will demonstrate the Use of the Prism Scale to Neutralise and Centre Spectacle Lenses. The Commercial Museum will be open from 9.15 A.M. daily.

SCOTTISH SOCIETY OF ANÆSTHETISTS.—The annual meeting was held in the hall of the Faculty of Physicians and Surgeons on May 26th, the President, Dr. D. Lamb, being in the chair. The Society considered and adopted a report from the executive committee on the question of the present remuneration and status of specialists in anæsthetics in Scotland. The report shows that the fees in Scotland are at present much below those paid in London and compare unfavourably even with those usual in English provincial centres. Emphasis is laid especially on the following points: 1. At the request of surgeons, anæsthetists frequently reduce their fee to suit the pocket of the poorer private patients in exactly the same spirit as the surgeons themselves do. To this they have no objection, but unfortunately it seems to be a general experience among anæsthetists that what may be termed their standard fee for an administration of average gravity in a patient of ordinary means has come to be looked upon as a maximum to be exceeded upon very rare occasions. It is certain that a considerable number of patients are charged an anæsthetic fee which is too small in comparison with the other expenses associated with the operation. 2. The remuneration paid even to anæsthetists of special experience and acknowledged standing is little if any greater than that accorded to the surgeon's assistant, who is usually a man of junior standing and only at the beginning of his career. 3. In the teaching hospitals, also, the present status accorded to the specialist in anæsthetics shows too little recognition of his responsibility and of his special training and experience. 4. The developments of modern surgery are such as to require the services of the properly trained and fully responsible anæsthetist, and it is felt that neither in respect of status nor remuneration do the present conditions give recognition and encouragement to good and sustained work. For the making of a good anæsthetist, natural aptitude, proper study, and prolonged hospital experience are all necessary, and unless those who devote themselves to the subject can look forward to reasonable prospects, the progress of the science and practice of anæsthesia must suffer. The Society recognises that any attempt to lay down rigid rules and scales of remuneration is not in accordance with the spirit of the profession. The individual specialist in anæsthetics must charge for his services in accordance with his own standing. It was hoped, however, that publication of the views of the Society may be of value in bringing before the profession the unsatisfactory nature of the present position.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. A. C. Bean has been placed on Retd. List with the rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

Capt. W. Fotheringham retires receiving a gratuity.
Lt. P. L. C. Carrier to be Capt.
Temp. Capt. R. B. Bryan relinquishes his commn. and retains the rank of Capt.

TERRITORIAL ARMY.

Majs. J. V. Bates (late R.A.M.C.) and G. M. Miller (late R.A.M.C.) to be Capts. and relinquish their rank of Maj.
Capt. W. L. M. Gabriel (late R.A.M.C., S.R.) to be Capt.
Capt. H. W. Bruce resigns his commn. and is granted the rank of Lt.-Col.
Capt. C. A. Sampson relinquishes his commn. and retains the rank of Capt.
Capt. C. S. Wink to be Maj.
Surg.-Comdr. A. La Touche Darley, R.N. (ret.) to be Maj.
K. S. Roden to be Lt.
Capt. R. M. Handfield-Jones to be Maj.

TERRITORIAL ARMY RESERVE.

Capt. D. O. Macdonald, from General List, to be Capt.

Maj.-Gen. J. Jackson, C.I.E., I.M.S., and Col. W. H. Ogilvie, C.B., C.M.G., I.M.S., have been appointed Hon. Physicians to the King, Indian Military Forces; and Col. R. Heard, I.M.S., has been appointed Hon. Surgeon to the King, Indian Military Forces.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 13TH.

Advertisements on Medical Certificates.

Mr. BRUFORD asked the Minister of Health whether he was aware that the backs of medical certificates issued in connexion with national health insurance were used to advertise articles of diet sold by a certain company; and, in view of the undesirability that medical men should be compelled to distribute certificates bearing what might easily be misconstrued by patients as being their doctor's recommendation of particular foods or drinks, would he exclude advertisements of this type.

Similar questions on the same subject were asked by Dr. WATTS, Mr. W. ADAMSON, Dr. SALTER, and Mr. LEACH.—Mr. NEVILLE CHAMBERLAIN replied: The considerations which led the Government to sanction the printing of advertisements on the back of this form were explained by the Paymaster-General in reply to Mr. J. H. Thomas on May 16th. Representations have been received that the advertisement of foods is open to objection, and I will consult the Stationery Office as to the possibility of securing other advertisements without loss of revenue when the present contract terminates, if there should then still be room for advertisements on the forms.

Lieut.-Commander KENWORTHY asked the Minister of Health whether he would state what revenue was expected to be derived in a year by utilising the back of the medical certificates, granted in connexion with the national health insurance, for advertising purposes; particularly what revenue was derived from the advertising on the back of the special intermediate certificates form med. 40b (revised); and whether he had had any expressions of disapproval of this practice from the medical profession.—Sir W. JOYNSON-HICKS (Financial Secretary to the Treasury) replied: The revenue from advertisements on the various medical certificates is estimated at £405 per annum (including £270 per annum from form med. 40b), and this sum is one of a large number of items of receipts for advertisements on Government publications (other than the Telephone Directory), which it is hoped will amount to about £30,000 for the current financial year. The answer to the last part of the question is in the affirmative.

Small-pox in Derbyshire.

Mr. FRANK LEE asked the Minister of Health whether his attention had been drawn to an expression of opinion by the medical officer of health for Chesterfield that the outbreak of disease in Clown, Bolsover, Ilkeston, and other places in Derbyshire, of recent date, which had been notified as one of small-pox, was not due to that complaint, seeing that its effects had none of the usual characteristics of face disfigurement and that no death had occurred in consequence; and would he institute further inquiry with a view to a correct and definite diagnosis being reached.—Mr. NEVILLE CHAMBERLAIN replied: I assume that the hon. Member is referring to certain statements which appear in the annual report of the medical officer of health of Chesterfield for the year 1922. If so, I may point out that in that report the medical officer acknowledges that his view is shared by only a very small minority. As regards the second part of the question, I may say that when similar statements were made last year an expert committee was appointed by my predecessor to examine certain patients in Chesterfield and elsewhere who had been notified as suffering from small-pox. This committee arrived at the conclusion that the disease was in fact small-pox of a mild type, a conclusion which is supported by subsequent investigations undertaken by medical officers of my department.

The Labelling of Dried Milks.

Mr. HURD asked the Minister of Health whether he was aware that skimmed dried milk was now being sold in this country with no sufficient indication that it was unfit for children as is required in the case of condensed milk; and whether he would enlarge the regulations under the Milk and Dairies Act of 1922 to cover this development.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. As I have already announced, I am considering regulations to provide for the proper labelling of dried milks.

Ex-Officers and Medical Boards.

Captain O'GRADY asked the Minister of Pensions whether the medical boards for ex-officers were held at regional headquarters; whether treatment was provided by regional medical officers; and whether it was proposed to transfer the officers' awards to the regional awards sections.—Captain CRAIG replied: Medical boards for ex-officers are held at regional headquarters and other convenient centres in

the provinces. Arrangements for providing treatment for ex-officers in the provinces are made by regional medical officers. It is not proposed to transfer the officers' awards to the regional offices. The Departmental Committee over which my right hon friend presided in 1920 recommended the continuance of the centralised system of officers' awards.

National Health Insurance Act.

Mr. WILLIAM M. ADAMSON asked the Minister of Health whether he intended to renew the National Health Insurance (Prolongation of Insurance) Act for the year 1924.—Mr. NEVILLE CHAMBERLAIN replied: Yes, Sir.

Disinfectants and Venereal Disease.

Mr. PETO asked the Secretary of State for the Home Department whether his attention had been called to the Report of the Committee of Inquiry on Venereal Disease; and whether he intended to introduce legislation during the present session to give effect to their recommendation to permit properly qualified chemists to sell appropriate disinfectants.—Mr. NEVILLE CHAMBERLAIN replied: The report of this committee is under consideration, and I am not yet in a position to announce what action will be taken upon their recommendations. I may add as regards the second part of the question that I am advised that there is nothing in the existing law to prevent chemists selling disinfectants for purposes of prevention of any venereal disease so long as they are not sold accompanied by any written or printed recommendations.

Manufacture of Morphia and Heroin.

Captain JOHN HAY asked the Secretary of State for the Home Department the number of factories in Great Britain where morphia and heroin are made; the amount of these drugs manufactured last year (1922); and the quantity sent abroad.—Mr. BRIDGEMAN replied: The number of factories licensed at the present time for the manufacture of morphia and heroin is two. The amount of morphia made in 1922 was 315,342 oz., of which, however, 173,010 oz. were converted into codeine or heroin, leaving a net total of 142,332 oz. The amount exported was 115,465 oz. The amount of heroin made in 1922 was 31,673 oz., and the amount exported 25,911 oz.

Nurses' Registration.

Dr. CHAPPLE moved an humble address to His Majesty praying that the rule made by the Minister of Health on May 23rd under the Nurses' Registration Act, 1919, should be modified so as to permit of the registration of nurses who have not had hospital training, but who produce certain certificates testifying to their character, to their nursing ability, and to their having completed three years' nursing practice prior to Nov. 1st, 1919.

Lieut.-Colonel FREMANTLE said he wished to give the reason why he differed from his professional colleagues who were supporting the motion before the House. If Parliament had decided on a democratic constitution for the nursing profession and that constitution was represented by the present General Nursing Council, who had clearly declared that it was impossible for them to recognise as satisfactory such bona fide nurses as would come in after the year 1910, the House could not possibly pass the proposal before them.

Mr. NEVILLE CHAMBERLAIN (Minister of Health), who later announced that the Government whips would be taken off for the division, said that he thought that Dr. Chapple's proposal went too far, but he would be willing to accept as a fair compromise a motion in the name of Colonel Fremantle which would bring on to the register nurses who were engaged in nursing on Nov. 1st, 1919, and who were also bona fide engaged in nursing prior to Jan. 1st, 1910.

Dr. Chapple's motion was carried by 111 votes to 81, and Colonel Fremantle's address and another in the name of Major Barnett were ruled out of order in consequence.

THURSDAY, JUNE 14TH.

The Fire at the Birmingham Pensioners' Hospital.

Mr. AUSTEN CHAMBERLAIN asked the Minister of Pensions if he had any information with reference to the fire which took place on the previous day at the pensioners' hospital at Highbury, how the injured were progressing, and what provision would be made for the dependents of those who had lost their lives.—Mr. W. M. ADAMSON asked a similar question.—Major TRYON replied: I have received a full report of this distressing fatality from one of my medical officers whom I sent to Birmingham last night immediately on receipt of the news. The hospital is not one which is owned by the Ministry, but has been made available for its exclusive use by special agreement with the Birmingham Pensions Hospital Committee, which is responsible for the administration. The fire took place in an isolated open-air ward shortly after 2 o'clock yesterday afternoon. The cause of it is still quite obscure. It originated in a small room at one end of the ward and the outbreak was at once observed

by the orderly on duty who, assisted by a patient, immediately attempted to deal with it, and gave the alarm. The fire brigade arrived in about five minutes. In the meantime practically the whole staff of the hospital had arrived on the scene and, together with all patients who were fit to do so, endeavoured to put out the flames and to remove the helpless patients from the ward. The fire, however, spread rapidly, aided by the gale of wind which was blowing at the time, and even before the fire brigade had arrived the position of the patients had become a matter of the utmost difficulty and danger. The rescue work was carried out at the cost of considerable injuries to some individuals, and the behaviour of all concerned calls for the highest praise. The ward was an open-air hut of the most modern type, such as is extensively used in this and other countries for the treatment of severe and often hopeless cases of tuberculosis and other diseases requiring ample access to sun and air. It was of wooden construction on a brick foundation with a galvanised iron roof. There were two exits; one was at the end of the hut, where the fire started, and was at once rendered inaccessible. The other was an opening 9 ft. wide in one side of the hut, through which two beds could simultaneously be removed. There were thus ample opportunities for exit in any normal emergency. There were in the ward nine full water buckets and two fire extinguishers. The number of patients in the ward at the time of the outbreak was 15, of whom only three could help themselves. In addition to the two patients who unfortunately lost their lives there were two who were seriously injured. I am glad to learn from further inquiries which I made this morning that they are going on well, though not yet out of danger. Other injured patients and members of the staff are progressing satisfactorily. I wish to express my sincere sympathy with the relatives of the men who have died and with those who have been injured. The House may rest assured that the claims of the dependents of those who have lost their lives will be generously and sympathetically dealt with. On the question raised by the hon. Member for Cannock, full inquiry will be made into all the circumstances, including the suitability of this type of building.

Pensions Nursing Service.

Mr. MURNIN asked the Minister of Pensions what were the numbers and grades of the Ministry nursing service employed at headquarters; what were their duties; and whether he would consider transferring these duties to the regional commissioners of medical services and the medical superintendents of Ministry institutions.—Major TRYON replied: The only members of the Ministry nursing service employed at headquarters are the matron-in-chief and the principal matron, who are engaged in the general supervision and co-ordination of the work of the whole nursing service. I am not prepared to accept the suggestion in the last part of the question, which I do not consider would be in the interests of either economy or efficiency.

Shepherd's Bush Orthopædic Hospital.

Major COHEN asked the Minister of Pensions whether the Orthopædic Hospital at Ducane-road, Shepherd's Bush, had to be closed down at the end of the year; and, if so, what steps the Ministry were taking to provide for the present patients the specialist treatment needed by them.—Major TRYON replied: The lease on which these premises are held expires at the end of the present year, and arrangements are being made for the accommodation of the patients by an extension of the facilities at Roehampton.

Panel Treatment for Service Pensioners.

Mr. EDWARDS asked the Minister of Pensions whether he was aware that ex-Service men who applied for treatment were told that treatment was necessary but that their panel doctor would prescribe for them; and would he make arrangements so that when treatment was necessary it could be given under the pensions scheme, and that it should carry with it treatment allowance.—Major TRYON replied: Under the terms of the Royal Warrant my department is only empowered to defray the expenses in respect of treatment which is not otherwise provided. Whether treatment is provided at the direct cost of the Ministry or whether it is provided by the man's insurance practitioner, treatment allowances are paid if it is certified that the man, as a consequence of having to undergo treatment, will, during treatment, be unable to work at a remunerative occupation.

India and Opium Control.

Mr. PONSONBY asked the Under-Secretary of State for India whether the representatives of the Government of India on the Advisory Committee on Opium of the League of Nations made any reservations in accepting the American principles with regard to the interpretation of The Hague Opium Convention; and, if so, for what reason did the Government of India adopt a different attitude from that of the other delegates, who accepted the principles without reservation.—Earl WINTERTON replied: The hon. Member is mistaken in supposing that the American principles met

with unanimous acceptance from all countries except the Indian Government. Certain other countries made a reservation regarding the use of opium prepared for smoking. The Indian reservation was to the effect that the use of raw opium according to the established practice in India, and its production for such use, are not illegitimate under the Convention. The reason for this is the fact that insistence on a medical prescription to enable raw opium to be used for medical or quasi-medical purposes would be impracticable in India.

Lead Poisoning among Painters and Plumbers.

Mr. ARTHUR GREENWOOD asked the Secretary of State for the Home Department whether he was aware that of the eight cases of lead poisoning among house painters and plumbers which came to the knowledge of the Home Office during April six were fatal; and whether, in view of these facts, he would urge upon the Government the importance of ratifying the white lead convention as recommended by the Norman Committee.—Mr. BRIDGEMAN replied: The question of ratifying the convention is receiving careful consideration.

Terms and Duties of Panel Doctors.

Sir KINGSLEY WOOD asked the Prime Minister whether before any revision was made in the terms and duties of doctors on the panel lists an opportunity would be afforded to the House of discussing the matter.—Lord E. PERCY replied: The Government cannot at this stage undertake that, when a settlement has been reached with the doctors, an opportunity will be given for the discussion of the new agreement before it comes into operation, but even if no express legislation is necessary Parliament will have an early opportunity for reviewing the terms of the agreement next session on the Vote on Account.

Cannock Chase Pensions Hospital.

Mr. ADAMSON asked the Minister of Pensions whether it had actually been decided to close the pensions hospital on Cannock Chase, and, if so, whether he would state the reasons for adopting this policy in view of the large expenditure incurred in building and equipment.—Major TRYON replied: Owing to the decreasing requirements for hospital accommodation in the Midlands arrangements have been made for the gradual closing of this hospital.

FRIDAY, JUNE 15TH.

Children in Workhouses.

Mr. CHARLES ROBERTS asked the Minister of Health the number of children over 3 years of age who on Jan. 1st, 1923, were being maintained in workhouses, workhouse infirmaries, sick wards of workhouses, wards for mental deficient, and other wards respectively.—Mr. NEVILLE CHAMBERLAIN replied: The figures are as follows:—

	Suffering from sickness, accident, or bodily infirmity.	Suffering from mental infirmity.	Not suffering from sickness, accident, or bodily or mental infirmity.	Total children between 3 and 16 in specified institutions.
Separate institutions for sick persons suffering from disease of body or mind—				
Infirmaries	4,753	157	28	4,938
Institutions solely for mental cases	—	1,118	—	1,118
Institutions administered under the Poor-law Institutions Order, 1913—				
Sick wards	2,293	157	29	2,479
Separate wards of children	—	—	1,466	1,466
Other wards	62	399	1,096	3,023
	7,108	1,831	2,619	11,558

The above figures do not include (a) children in separate establishments for children, or (b) children in institutions not provided by Poor-law authorities.

Small-pox in Gloucestershire.

Sir WALTER PRESTON asked the Minister of Health whether the official employed by the Gloucester medical officer to distemper houses where small-pox had occurred had himself contracted the disease, and when this official was last vaccinated.—Mr. NEVILLE CHAMBERLAIN replied: I have made inquiries of the local authority and am informed that no official employed to distemper houses where small-pox has recently occurred in Gloucester has since contracted the disease.

Sir WALTER PRESTON asked the Minister of Health how many cases of small-pox there had been in Gloucestershire

in January, February, March, April, and May of this year, and whether any special steps had been taken to cope with the disease in Gloucestershire.—Mr. NEVILLE CHAMBERLAIN replied: The numbers of cases of small-pox which have been notified in Gloucestershire, including the city of Gloucester, during these months have been as follows: January, nil; February, nil; March, 8; April, 25; and May, 31. There is, however, evidence to show that many cases have occurred in the city of Gloucester during the past two months which have not been recognised as small-pox by the medical officer of health and have not been notified. Special visits have been paid by medical officers of my department to the districts in which the disease has occurred, in order to assist and advise the local authorities and their officers. In the case of Gloucester, two of these medical officers have at the request of the local authority assisted in the diagnosis of cases and in the organisation of suitable measures to meet the emergency, and these officers discovered a number of cases which had been incorrectly diagnosed or overlooked. I have since caused a communication to be sent to the local authority recommending the several special steps which should be taken to deal with the outbreak, and I understand that effect is being given to these recommendations.

MONDAY, JUNE 18TH.

Notification of Tuberculosis in Cattle.

Mr. ADAMS asked the Minister of Agriculture whether he would re-introduce the Tuberculosis Order of 1914, or one having similar effect, in which tuberculosis in cattle was made a notifiable disease; and whether he would promote a measure to compel all county authorities and the larger cities or combinations of smaller authorities to appoint whole-time veterinary officers, and to compel the application of regular veterinary inspection of cattle, particularly dairy herds, throughout the country, such officers to be also responsible for the inspection of meat in the districts concerned, and if need be to set up veterinary departments for this purpose, as in certain of the larger local authorities of the kingdom.—Sir R. SANDERS replied: Unless and until I am assured that a majority of local authorities, including counties and cities, are in favour of the re-introduction of the Tuberculosis Order of 1914, I do not see my way to re-issue this Order in view of the very considerable expenditure involved not only to my department but also from local funds. With regard to the second part of the question, I would remind the hon. Member that Section 1 of the Milk and Dairies (Amendment) Act, 1922, deferred until Sept. 1st, 1925, the operation of Section 10 of the Milk and Dairies (Consolidation) Act, 1915, which contemplated the appointment of veterinary inspectors by local authorities for purposes similar to those suggested in the question.

Nurses' Registration in Scotland.

Dr. CHAPPLE asked the Under Secretary to the Scottish Board of Health whether existing nurses practising in Scotland would be eligible to take advantage of the decision of this House with regard to nurses' registration on June 13th.—Captain ELLIOT replied: The decision referred to does not apply to the rules of the General Nursing Council for Scotland. So far as the Scottish register is concerned, therefore, the answer is in the negative. As regards the position of nurses practising in Scotland in relation to the English register the matter is one for the General Nursing Council for England and Wales.

TUESDAY, JUNE 19TH.

Small-pox and Official Reports.

Mr. BROMFIELD asked the Minister of Health whether he would direct medical officers of health to record in their future annual reports the number of cases of small-pox and other infectious diseases notified from families living in houses or tenements containing one room, two rooms, three rooms, four rooms, and five or more rooms, respectively.—Mr. NEVILLE CHAMBERLAIN replied: I will consider this suggestion in connexion with the preparation of the next circular on the subject of the annual reports of medical officers of health.

PRESENTATION TO A MEDICAL MAN.—On June 11th, in the town hall at Wallasey, Dr. Bouverie McDonald, first Member of Parliament for Wallasey when it became a Parliamentary borough, was presented with his portrait in oils, which will be hung in the civic gallery. The portrait has been painted by Mr. J. A. A. Berrie, A.R.C.A., and the presentation was made by Mr. J. T. Chester, the first mayor. Mr. W. H. Robinson, the Charter Mayor, who presided, said the presentation was made the more pleasant because all sections of political opinion in the borough were associated with it. Dr. McDonald, who was elected in 1918 but did not stand at the last election, has taken a keen interest in the various philanthropic and social efforts of the borough. He has served on the Cheshire County Council and is on the Commission of Peace for the county.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.

THURSDAY, June 28th: at 4.30 p.m.

Paper to be read:—Prof. V. H. Blackman, A. T. Legg, and F. G. Gregory: The Effect of a Direct Electric Current of very Low Intensity on the Rate of Growth of the Coleoptile of Barley.

Papers to be read in title only:—Miss R. M. Tupper-Carey and Prof. J. H. Priestley: The Composition of the Cell Wall at the Apical Meristem of Stem and Root. (Communicated by Dr. F. F. Blackman.) L. J. Harris: The Titration of Amino- and Carboxyl-groups in Amino-acids, Polypeptides, &c. (Communicated by Prof. F. G. Hopkins.) Dr. M. S. Pembrey, N. W. MacKeith, W. R. Spurrell, E. C. Warner, and H. J. Westlake: Observations on the Adjustment of the Human Body to Muscular Work. F. A. E. Crew: Studies in Intersexuality. II. Sex-reversal in the Fowl. (Communicated by Prof. R. C. Punnett.) Prof. W. Finkler: Analytical Studies on the Factors causing the Sexual Display in the Mountain Newt (*Triton alpestris*). (Communicated by Prof. E. W. MacBride.) G. A. Schott: On the Scattering of X and γ Rays by Rings of Electrons: the Effect of Damping of the Incident Radiation. Major P. A. MacMahon: On a Class of Transcendents of which the Bessel Functions are a Particular Case. L. C. Martin: The Photometric Matching Field. (Communicated by Prof. H. L. Callendar.) G. P. Thomson: Test of a Theory of Radiation. (Communicated by Sir Joseph Thomson.) A. L. Hughes, and P. Lowe: Intensities in the Helium Spectrum. (Communicated by Prof. H. A. Wilson.) A. A. Dee: The Effect of Quenching from above the Carbide Transition Temperature upon the Magnetism of Steel. (Communicated by Prof. S. W. J. Smith.) T. S. P. Strangeways and H. E. H. Oakley: The Immediate Changes observed in Tissue Cells after Exposure to Soft X Rays while Growing "in Vitro." (Communicated by W. B. Hardy.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETING OF SECTIONS.

Monday, June 25th.

ODONTOLOGY: at 8 p.m.

Casual Communications:

Mr. L. E. Claremont: Case of Fibro-cystic Disease of the Lower Jaw.

Prof. Hopewell-Smith: Two Odontomes.

Paper:

Prof. Hopewell-Smith: Some Observations on the Histology and Pathology of the Dental Pulp.

Wednesday, June 27th.

SURGERY: at 5.30 p.m.

Discussion:

To be opened by Dr. William J. Mayo (Rochester, U.S.A.) on the Surgery of the Hepatic and Common Bile-ducts. Sir Berkeley Moynihan, Mr. James Sherrin, Mr. G. Grey Turner, and Mr. A. J. Walton will also speak.

Thursday, June 28th.

UROLOGY: at 8.30 p.m.

Paper:

Prof. C. G. Cumston (Geneva): The Diagnostic Value of Albuminuria in Chronic Nephritis.

Exhibition of Clinical and Pathological Specimens:

Mr. Kidd will show Candle removed from the Bladder of a Young Male Adult.

Members wishing to show cases or specimens are requested to notify the hon. secretaries.

Friday and Saturday, June 29th and 30th.

OTOLOGY.

Summer Meeting at Cambridge, at Gonville and Caius College (by kind permission of the Master and Fellows).

The meeting will be of a physiological character and will be devoted to the Labyrinth. Dr. de Kleijn (Utrecht) will describe some of the work associated with his name and that of Prof. Magnus. Other papers will be read and demonstrations given.

(For details see special circular.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.

FRIDAY, June 29th.—5.30 p.m., Sir Henry Gauvain: Heliotherapy with Special Relation to its Use in Surgical Tuberculosis.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, June 25th.—10 a.m., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 3 p.m., Dr. Simson: Diseases of Women.

TUESDAY.—10 a.m., Mr. Steadman: Dental Dept. 10.30 a.m., Dr. Paterson: Medical Wards. 2.30 p.m., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 a.m., Dr. Saunders: Medical Diseases of Children. 11 a.m., Mr. Simson: Gynaecological Demonstration. 12.15 p.m., Dr. Burnford: Medical Pathology. 3 p.m., Dr. Pernet: Skin Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.
 FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Dept. 11 A.M., Dr. McDougal: Electrical Dept. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.
 SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
 Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.
 THURSDAY, June 28th.—4.30 P.M., Mr. H. D. Gillies: Some Applications of Plastic Surgery in Civil Life.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham.
 Demonstration of Clinical Cases at 3.30 P.M.

MONDAY, June 25th.—Medical: Dr. J. Browning Alexander. TUESDAY.—Surgical (3 P.M.): Mr. Howell Evans.

WEDNESDAY.—Eye Cases: Mr. Norman B. B. Fleming.

THURSDAY.—Surgical: Mr. H. W. Carson.

FRIDAY.—Diseases of Children: Dr. C. E. Sundell.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY-JUNE, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, June 25th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., X Ray Demonstration: Dr. Russell Reynolds.

TUESDAY, June 26th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Tumours Causing Compression Paraplegia: Mr. Armour.

THURSDAY, June 28th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Syringomyelia: Dr. Grainger Stewart.

FRIDAY, June 29th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Demonstration of Fraenkel's Exercises in Exercise Room.

COURSE OF LECTURES ON NEURO-PATHOLOGY.

MONDAY, June 25th.—12 noon, Syphilis of the Nervous System: Dr. J. Godwin Greenfield.

A COURSE OF 12 LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS and FRIDAYS if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

WEDNESDAY, June 27th.—4.15 P.M., Dr. W. M. Feldman: The Physiology of the Infant.

THURSDAY.—4.15 P.M., Mr. G. E. Vilvandre: The Stomach from the Radiologist's Standpoint.

FRIDAY.—4.15 P.M., Mr. G. E. Neligan: Hydronephrosis and Diverticula of the Bladder.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, June 28th.—4 P.M., Dr. Cockayne: Tuberculous Mediastinal Glands.

INFANTS HOSPITAL, Vincent-square, S.W. 1.

TUESDAY, June 26th.—8.45 P.M., Mr. H. Tyrrell Gray: Pyloric Stenosis.

THURSDAY.—8.45 P.M., Dr. D. Paterson: The Treatment of Disorders of Digestion in Infants.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, June 28th.—5 P.M., Mr. A. W. Bourne: Anaesthetics in Labour.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

MONDAY, June 25th.—At Hereford, Prof. Edgeworth: Inter-relations of Internal Secretion Glands.

Appointments.

CALLANDER, L. D., M.D. Edin., has been appointed Visiting Surgeon, Poor-law Infirmary, Doncaster.

FORREST, A. W., M.D., Ch.B. Edin., D.P.H., Medical Officer of Health for Wandsworth.

GASPEY, E. T. D., M.D. Brux., M.R.C.S., L.R.C.P., Assistant Tuberculosis Officer and Resident Medical Officer, the Sanatorium, South Shields.

SMITH, G. F. R., M.B., B.S. Lond., M.D. Liverp., Lecturer on Dental Anaesthetics in the University of Liverpool.

YATES, IRENE, M.D. Lond., M.R.C.P. Lond., Assistant Physician, Elizabeth Garrett Anderson Hospital.

Chelsea Hospital for Women: GALLETLY, A., M.B., Ch.B., M.C., Registrar; JONES, A. D., M.R.C.S., L.R.C.P., House Surgeon.

Surgeons under the Factory and Workshop Acts: HALSTEAD, W. W., M.R.C.S., L.R.C.P. Lond. (Totter); OWEN, R., M.D., C.M. Edin. (Bangor); and INGLIS, T., F.R.C.P. Edin. (Ryde).

Vacancies.

For further information refer to the advertisement columns.

Barbados General Hospital.—Jun. Res. S. £250.

Birmingham and Midland Hospital for Skin and Urinary Diseases, John Bright-street, Birmingham.—Asst. Radiologist.

Brighouse Borough, &c.—M.O. and School M.O., &c. £750.

Chesterfield and North Derbyshire Royal Hospital.—Cas. O. and Orthopaedic H.S. £170.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—Res. M.O. £250.

Durham County Council Maternity and Child Welfare.—Asst. Welfare M.O. £600.

East African Medical Service.—M.O. £600.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Afternoon Cas. O. £120, Part-time Path. £400.

Elizabeth Garrett Anderson Hospital, 144, Euston-road.—Jun. Asst. Pathologist. £100.

Godalming, Surrey, King George V. Sanatorium.—Jun. Asst. M.O. £422.

Grosvenor Hospital for Women, Vincent-square, S.W.—Hon. Reg. King's College Hospital Medical School, Denmark Hill, S.E.—Director of Dental Studies. £400.

Lancashire County Mental Hospital, Winwick, Warrington.—Locum Tenens. 7 guineas weekly.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Res. H.P. £150.

Leicester City Mental Hospital, Humberstone.—Third Asst. M.O. and Clin. Path. £350.

Leicester Royal Infirmary.—H.S. £150.

Liverpool Royal Children's Hospital.—Res. M.O. £150.

Macclesfield General Infirmary.—Second H.S. £150.

Manchester Northern Hospital for Women and Children.—H.S. £200.

Margate, Royal Sea Bathing Hospital.—Res. S. £200.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon. Asst. in Electric Dept.

North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O. £500.

Nottingham County Sanatorium.—Asst. Res. M.O. £375.

Plymouth, South Devon and East Cornwall Hospital.—H.P. £100.

Poplar Borough.—Dist. M.O. for Old Ford Med. Dist. £200.

Portsmouth Workhouse Infirmary, &c.—Med. Supt. £850. Also First Asst. M.O. and Second Asst. M.O. £350 and £300 respectively.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Two Asst. Res. M.O.'s. £80.

Queen Mary's Hospital for the East End, E.—Cas. O. £150. Also Hon. M.O. for Radio-Electro-Therapeutic Dept.

Royal Naval Medical Service.—Surgeon-Lieutenants.

Sedburgh School, Yorkshire.—M.O.

Sheffield City Education Committee.—Asst. School M.O. £500.

Shrewsbury, Royal Salop Infirmary.—H.P. £160.

Southampton County Borough.—Asst. M.O.H. £500.

South London Hospital for Women, Clapham Common, S.W.—Clin. Asst. £1 ls. per attendance.

South Shields, Ingham Infirmary.—Jun. H.S. £150.

Sunderland, Children's Hospital.—Jun. Res. M.O. £100.

Sunderland Royal Infirmary.—H.S. £160.

University College Hospital, Gower-street, W.C.—Asst. for Ear, Nose, and Throat Dept.

Weaverham, Cheshire, Hefferston Sanatorium.—Res. M.O. £600.

West African Medical Service.—M.O. £660.

Wolverhampton and Staffordshire General Hospital.—Res. Surg. O. £250.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Chirnside, Berwickshire; Stourbridge, Worcestershire; Bridgend, Glamorganshire.

Births, Marriages, and Deaths.

BIRTHS.

BADENOCH.—On June 14th, at Grange Park-road, Leyton, the wife of Dr. William M. Badenoch, of a daughter.

POWER.—On June 12th, at a nursing home, Worcester, the wife of Squadron Leader D'Arcy Power, M.C., R.A.F. Medical Service, of a son.

PRINGLE.—On June 11th, at Withington-road, Manchester, the wife of Dr. Pringle, of a son.

ROLLESTON.—On June 13th, at Upper Richmond-road, S.W., the wife of Dr. J. D. Rolleston, of a daughter.

MARRIAGES.

ROBERTS—JAMESON.—On June 9th, at St. Saviour's Ballater, Dr. Douglas Roberts to Rosabel Seymour, daughter of the late Dr. A. Seymour Jameson, and of Mrs. Jameson, of Aberdeen.

DEATHS.

FOX.—On June 13th, suddenly, from heart failure, Hugh Clayton Fox, F.R.C.S.I., M.R.C.S., of New Cavendish-street.

McDONNELL.—On June 14th, Dr. Alexander McDonnell, 39, Stamford-hill, N. 16, passed peacefully to rest, in a nursing home, after operation.

THOMAS.—On June 13th, at Lydney, Gloucestershire, Cyril Nelson Thomas, B.A., M.B., B.Ch., aged 57.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

PUERPERAL INSANITY.*

BY SIR ROBERT ARMSTRONG-JONES, M.D. LOND.,
D.Sc., F.R.C.P.,

LORD CHANCELLOR'S VISITOR IN LUNACY; FORMERLY LECTURER
ON MENTAL DISEASES, ST. BARTHOLOMEW'S HOSPITAL, AND
EXAMINER IN THE UNIVERSITY OF LONDON.

THE classification of puerperal insanity into that of (a) pregnancy, (b) puerperal, and (c) lactation has the merit of convenience: cases occur in the rough proportion of two, four, and three respectively. My own figures gave as the frequency of insanity with childbirth the approximate ratio (for London) of one case in every 1100 births, although some authorities have quoted a much higher ratio, varying from 1 in 400 to 1 in 700 births. Even if I take my own figures of only one case in 1100 births, the fact that an average of about 880,000 infants are born every year in England and Wales shows that about 800 mothers become victims to insanity each year at this period, which is a high toll taken of pregnant women.

Mental Changes, Normal and Abnormal.

Those who have studied the mental changes which occur under normal circumstances during a natural pregnancy must realise that in persons of a highly susceptible disposition—viz., those that are of the quick, nervous, and sanguine temperament, these changes are apt to be very decided and to become exaggerated. The ordinary digestive troubles, the various forms of neuralgia, the occasional insomnia, the feeling of weight and dizziness are apt to develop into more than the ordinary irritability and restlessness. They sometimes proceed to fractiousness, excitement, or extreme despondency, ending in a complete mental breakdown; the normal affections may turn into suspicion and hatred, the reproductive functions experience a reversal, and the ordinary maternal instincts become so perverted that they are a real and a grave danger to both mother and child.

It is an elementary experience in psychology that the feelings and the emotions govern our daily lives. They are the elementary excitations to voluntary action. They so completely dominate our normal conduct that when disturbed they become potent factors in the causation of insanity. During normal pregnancy the emotions are apt to be somewhat intensified, but under abnormal conditions they may become so exaggerated that insanity results, and of the so-called "ætiological factors," that described as "continuous mental stress," is ascertained to be one of its chief causes. Therefore in first pregnancies, and especially in the case of illegitimate births, we should expect to find insanity to be not infrequent. The moral factors of shame, disgrace, and the resentment that one has been greatly wronged are forms of mental stress experienced in illegitimacy; 12 per cent. of my cases were single women and in the single women the majority of the cases of insanity occurred during their pregnancy, fewer after childbirth, and fewest during lactation, the comparatively slighter incidence during lactation being doubtless due to the fact that few of the single women were allowed to nurse their own infants.

In the general population, the ratio of illegitimate births to legitimate is only 4 to 6 per cent., so it is very evident that illegitimacy, and the emotional stress associated with such a pregnancy, tend to supply one of the chief factors—viz., worry, in the determination of insanity among single women. Of first pregnancies, 78 per cent. were in single women and only 25 per cent. in married women, the fear of the ordeal is thus a totally different affair mentally to the single as compared to the married. In a third of all first pregnancies the symptoms of insanity appeared within six weeks after the confinement. The age of greatest incidence for mental breakdown in my cases was between 25 and 30. I may add, in passing, that one of my patients had suffered from an attack of insanity at the birth of each of 12 children, and in another after each of nine confinements; both cases became subject to incurable insanity at the climacteric.

Onset and Characteristics.

The symptoms of insanity in puerperal cases almost invariably begin with loss of sleep and, as in all other forms of mental disturbance, this is the most frequent and distressing of all the symptoms. It is a bad omen that must be combated at all cost. Following loss of sleep is a delirium which comes and goes, the patient gets confused on occasions, she seems to get "brain-weary," the stimulus of a voluntary

effort is maintained only for a brief interval, coherence can only be sustained for a very short period, then she begins to ramble, and be discursive, to be anxious about trifles, and to show restlessness. There is, with this stage, a dry and coated tongue, the lips and teeth have sordes, the urine is scanty and concentrated, and the bowels are constipated, showing there is defective elimination and that some toxin is infecting the patient. There is often a raised temperature and an offensive discharge pointing to the retention of some clot or membrane either in the uterus, the cervix, or the vagina; in some cases, also, toxic products are found in the urine, for I have known albumin to occur when not expected.

The insanity associated with the puerperal period appears to be often of a special kind, so much so that a "nosological entity" may be recognised. When a case of confinement begins with sleeplessness, and this is followed by a feverish and anxious restlessness, a busy and silly concern about trivial details; when there is a too ready response to outward impressions and there is a pointless, baseless chatter, there is a great danger of puerperal delirium, which may soon pass into mania, with delusions of a hallucinatory character, primarily visual, then auditory and not infrequently olfactory. In this mania there is often a marked religious exaltation, associated with erotic tendencies, prurient talk, shouting and singing. Improper suggestions are made, and these unpleasant features appear in women of unblemished character. There is often a suspicion of the husband and a distrust of those who are dearest. These symptoms of gibberish nonsense and immodest chatter are, I think, peculiar to puerperal insanity. They are as characteristic of it as depression and reserve are of the lactational form.

One of the great dangers in puerperal mania is the impulsive and unexpected conduct of the sufferer, resulting sometimes in tragic catastrophe to herself or in some serious harm to the infant. Such patients often take a violent dislike to the husband which is also extended to the offspring. Such "suicidal" tendencies affected nearly one-half of the cases that were under my care, chiefly in the insanity occurring during pregnancy, whereas the antipathy to the child occurred during late lactation.

Special Precautions in Nursing.

It will be the first aim of the nurse to avoid the stigma of certification; she will try her best to keep the patient in her own home and not have her certified.

There is a Bill now before Parliament to postpone certification and make it legal for a patient suffering from a definite attack of insanity to be cared for in an institution without certification. If a mother is certified as insane after the birth of her baby, even when she has got well and has resumed her place in the family life, she will be reminded at each successive pregnancy that she was insane with a former baby, and this worry will help—if anything can—to precipitate another mental breakdown. The certificate of insanity will also inevitably affect the future of her children and will cause a prejudice against them. Moreover, the stigma will excite a fear that her children may at some future date also require certification. A person who has been once certified and has recovered may feel that if a little more patience had been exercised by the doctor and the nurses, she might have been spared the loss of her freedom and all that this entails. It is wise, therefore, to do everything one can to carry out home treatment, but violence or excitement may make this very difficult. Violence must never be met with restraint on the part of the nurse; the patient should not be thwarted or held down, and no restraint of any kind should be practised in a private house. It is possible to do without it. At Claybury for a period of over ten years, with experience of more than 10,000 cases, some of the most acute types, restraint was never once used to control a violent patient. It is almost unbelievable that if a patient is allowed to move about and gesticulate and demonstrate without restraint or obstruction she (or he) will invariably soon settle down quietly. When patients are turned out into the gardens and grounds after a few somersaults and songs, the sensorimotor disturbances cease, and the realisation by the patient that she is no longer in the "lime-light" will bring about the cessation of all former excitement. It is therefore essential that toleration and perseverance should be regarded as essential qualities for the nurse in the successful treatment of this phase of purposeless excitement.

The risk of suicide must, however, always be borne in mind; the fire must be guarded; all medicines, lotions, and drugs must be kept from the patient's reach and sight; all sharp instruments such as knives, scissors, and razors must be removed; the key must be taken from the lock in the door to prevent her locking herself in; the windows must be blocked to prevent their being thrown open and so to suggest a precipitation; the patient's room should, if possible, be on the ground floor. It should be as free from useless furniture as can be managed, there should be no

* Abstracted from a lecture entitled the Nature of Puerperal Insanity and a Few Remarks on How to Nurse a Case, delivered before the Association of Inspectors of Midwives on May 8th.

pictures, the wallpaper must not be too glaring in colour or pronounced in pattern, and the room should be large and airy. Impulsive behaviour towards the infant is a form of excitement very prevalent with puerperal cases, and the child must be kept apart. These are the special considerations of the environment, but it is imperative that the same precautions should be observed out-of-doors also, as the patient should be out as much as possible, and similar precautions hold good. Watchfulness on the part of the nurse is the secret of safety, but the nurse's attention must not be too direct or obtrusive, and at least one nurse by day and one by night (with the necessary relief) must be provided for all cases. Of all illnesses a mental one is the most expensive; but in acute insanity, in the early stages, it pays to spend freely upon the patient's welfare and treatment.

As to the patient herself special attention has to be given to the condition of the breasts, which may need strapping and support, and in particular to cleanliness, and to the aseptic treatment of discharges. A hot douche of plain boiled water cooled to 110° or a mild antiseptic added to it will sometimes bring down the temperature almost at once. The cleanliness of the patient must always be the nurse's first consideration and a hot bath may be the only method of securing this, as she may resent other interference. Special attention must be given to the state of the bladder, as in delirious conditions there may be a distension and even an overflow. The urine must also be examined microscopically, as well as bacteriologically, by the doctor, and the nurse must place specimens before him either naturally passed or withdrawn by catheter. I have known unsuspected albumin to be present, as also pus, and the *Bacillus coli*, and these associated with very great discomfort and restlessness. Constipation is the bane of cases of delirium and this must be avoided by the use of calomel, as it will probably be impossible to use the enema syringe. Sleep is the chief aim of the nurse in mental cases, and for this the "long immersion" bath will prove most helpful, and it will also assist in cleansing any foul discharges. Sleep can often be helped by the administration of a small quantity of alcohol with liquid nourishment, such as a little brandy or dry sherry, or even a tumblerful of stout with a teaspoonful of malt extract in it. I have seen mild suggestion and stroking the hand or forehead soothe to sleep some very restless cases. Of all the difficulties in nursing puerperal cases, feeding is one of the most imperative to carry out properly. Liquid food must be administered during every quiet interval, and enforced alimentation or compulsory super-alimentation must be had resort to, though the nurse must not use any form of mechanical feeding, this being left to the doctor; uniform kindness and a firm determination will often overcome the patient's resistance to taking food. In these states of toxæmia, unless feeding is efficiently carried out, the patient may die before restoration can be effected.

Conclusion.

An old physician has wisely said that no medicinal agents can directly relieve a disordered mind. This can only be effected by controlling the disordered body with which the disordered mind is associated, and great experience and much investigation are necessary to ascertain this disorder and to discriminate it from other disorders of the body. The morbid and effete material which has been taken up into the circulation during the period of early uterine involution must be eliminated through the venous, the lymphatic, and the excretory organs of which the skin, the lungs, the kidneys, and the bowels are the chief. If this kind of nursing care can be secured and maintained for a few weeks, it will probably be rewarded by a complete convalescence, and the tact, the watchfulness, the patience, and sympathy of the nurse will result in at least 70 per cent. of these cases getting well before the expiration of three months. There is no form of insanity that so well repays the nurse for her extreme self-denial, devotion, and skill as that associated with the puerperal state, nor is any form more rapidly fatal if not properly treated.

HEALTH CONDITIONS IN TRINIDAD.¹

THE population of Trinidad, together with that of the neighbouring island of Tobago, as taken at the census in April, 1921, was 365,913, and was estimated to be 366,760 at the middle of that year. The birth-rate was 31.7 (as stated on p. 3 of the report, not 31.1, as stated on p. 4), and the death-rate is returned as 24.05 per 1000, as compared with 22.15 for the quinquennium, 1916-20; but the ratio for 1921 is acknowledged to be not correct (owing to difference between the estimated population for 1920 and the census population of 1921), and the actual number of deaths (8824) was 502 less than in 1920.² The infantile mortality ratio (139 per 1000 births), though showing an

¹ Report for 1921 of Medical Inspector of Health, Trinidad. Govt. Printing Office, Port of Spain. 1922.

² (Page 1.) On page 9 the difference appears as 414.

improvement on that of the previous year (174), and of the quinquennium, 1915-19 (147), is still high; in the town of San Fernando it was 243 per 1000, in Port of Spain 174, in the rural districts as a whole 129. Enteric fever showed a great improvement; the cases numbered 820 and the deaths 240, compared with 1198 and 295 in 1920; 521 of the cases and 161 of the deaths occurred in the three districts of Port of Spain, Tacarigua, and St. Joseph. Dr. J. R. Dickson, medical inspector of health, who forwards this report, considered that contact, direct or indirect, was the chief mode of spread; inoculation of contacts and education in personal cleanliness were the measures of control chiefly carried out (and presumably local sanitary, or insanitary, conditions dealt with as required).

Pulmonary tuberculosis was notified in 442 cases, and caused 473 deaths (1.28 per 1000) during the year; in 1920 there had been 552 notifications of this disease. "The preponderance of pulmonary cases emphasises the fact that infection is very largely due to personal contact and environment, and indicates that preventive measures should be largely educational, in the direction of early detection of cases, personal cleanliness, improvement of dwellings, and generally of home conditions." Of the 442 cases notified in 1921, 206 dwelt in Port of Spain; and of the 473 deaths 203 occurred in the same urban district. Pneumonia accounted for 470 deaths during the year (p. 7), giving a ratio of 1.29 per 1000 (not 1.0 per 1000 as stated on p. 3); of the 470 deaths, 174 occurred in the two urban districts of San Fernando and Port of Spain. Anti-malarial measures are being carried out in various parts of the island; venereal clinics have been established in Port of Spain and San Fernando; and the intensive curative and educational campaign against ankylostomiasis of the Rockefeller International Board is being continued.

ST. CHAD'S HOSPITAL FOR PAYING PATIENTS, BIRMINGHAM.

THE report of the hospital committee for the year ending March 31st, 1923, records a fall in the number of admissions (752 against 833 in 1921-22), due to the general industrial depression prevailing throughout the year. "Even the low inclusive fees charged have been beyond the means of many who in more prosperous times would gladly have availed themselves of the advantages" offered by the hospital. The area from which patients were received is wide, ranging from Redcar and Whitehaven to Weymouth; almost all patients paid an inclusive fee for accommodation and treatment, which was about 50 per cent. lower than the cost of similar private treatment elsewhere. There are now 32 specialists on the staff of the hospital; the opportunities for training of nurses are exceptionally good, the practical knowledge obtained in the wards being supplemented by systematic lectures by a sister tutor and by the resident medical officer and members of the medical staff. Great interest in the hospital has been manifested by other centres, and information has been sought not only by authorities from London, Glasgow, and other cities, but by the Director-General of Health, Wellington, New Zealand. The committee have endeavoured to make St. Chad's fulfil as completely as possible the conditions laid down by the Advisory Committee to the Minister of Health as desirable in a hospital for paying patients; it has now been made possible for patients to make direct applications to this hospital for admission and treatment. Application must be made to the house governor, who is empowered to assess the amount of fees payable according to the nature of the treatment required and the financial circumstances of the patient. "In the interest of the patient it is strongly recommended that a letter of introduction from his or her doctor should be presented at the time of application, or the name of the doctor given."

AN IMPROVED FIRELIGHTER.

WE have received from "Certo" Limited, 42, High-street, Hampton Wick, Middlesex, specimens of a patent firelighter which consists of slips of an inflammable material 5 in. by 1 in. pivoted together at the centre so that the slips can be spread out in the shape of a star which is then placed in the grate between layers of coal. No paper or wood is required, and, if the fire is carefully laid, the result is good. When the firelighter is in its closed condition a hundred of them only occupy a space of 10 in. by 6 in. by 6 in., so that the arrangement is economical of storage room. The price is 6d. a packet of ten firelighters.

Messrs. Burroughs Wellcome and Co. have acquired a site at 9/11, East Forty-first-street, New York, almost opposite their old offices, and have erected upon it a 12-storey building in the Gothic style. The lower part of this building is now occupied by the firm as its general offices for the U.S.A., the ground floor being utilised for the display of fine chemicals and medical equipments.

An Address

ON THE

SURGERY OF THE HEPATIC AND COMMON BILE-DUCTS.

Read before the Surgical Section of the Royal Society of Medicine on June 27th, 1923,

BY WILLIAM J. MAYO, M.D.,
ROCHESTER, MINNESOTA.

To the clear brain and clever hands of Lawson Tait, the father of modern abdominal surgery, who early made excursions into this field of biliary surgery, we owe much, but to the Leeds school, more than to all other influences, we owe the knowledge and methods which have made the upper abdomen, from a surgical standpoint, one of the best understood and most satisfactory regions of the human body. Robson's publications and his untiring work as an investigating surgeon made him the leader for his generation in surgery of the biliary tract, and in Moynihan, his brilliant successor, we recognise the ablest exponent of the principles and practice of surgery in this field. Moynihan's clearness of presentation and lucidity of explanation, in conjunction with unequalled technical ability, have given him a name and fame which are the pride of the English-speaking people.

THE MATERIAL OF THE MAYO CLINIC.

The President of the Surgical Section of the Royal Society of Medicine has asked me to open the discussion of the subject of surgery of the biliary passages from the standpoint of the surgeon and to deal with the art, rather than the theory and the science of surgery. Perhaps I can best accomplish this by discussing the material from the clinic with which I am connected, outlining the viewpoint of the various surgeons working in the clinic, and the methods of treatment which they have found most effective. I shall discuss the common duct and the main hepatic duct because the pathologic processes with which the surgeon is concerned in this special field must be treated as a whole.

In the period from Dec. 31st, 1890, to Dec. 31st, 1922, there were 16,980 operations performed on the biliary tract for all conditions, acute, chronic, and malignant, by the surgeons on the general staff of the clinic, with an average mortality of 2.6 per cent. Of these operations, 1920 were on the common and hepatic ducts with an average mortality of 7.8 per cent. In the ten years from 1910 to 1920 the average mortality for operations on the common and hepatic ducts was 6.8 per cent. In 1921 the mortality for operation on the common and hepatic ducts was 5.6 per cent. In 1922, by reason of better pre-operative preparation of patients, the mortality dropped to 3.8 per cent. for operations on the common and hepatic ducts, and to 1.6 per cent. for 142 cholecystectomies.

All patients dying in the hospital following operation, without regard to the length of time thereafter, or the immediate cause of death, were classified as having died from the operation. It may seem somewhat severe to classify patients as having died from operation, who, when operated on, had chronic nephritis, hepatic insufficiency from biliary cirrhosis, and secondary cardio-renal disturbance, the result of months of cholæmia and duct infection, and patients who had died in the hospital some weeks after operation from causes not connected with it. However, without an arbitrary standard of classification, it is difficult to secure comparable statistical data from different hospitals. Perhaps, too, there is a certain stimulation in holding ourselves to a high standard of responsibility.

Satisfactory improvement, so far as mortality is concerned, is manifest by these data. Improvement has been greater than would be apparent by a study

of mortality alone, because of constantly increasing knowledge and improvement in technique more and more severe cases have been undertaken, and operations carried out successfully which, in the earlier days, were not attempted.

THREE FUNDAMENTAL PRINCIPLES.

Certain fundamental principles which greatly affect the welfare of surgical patients must be evaluated. They concern: (1) mortality from the operation, (2) benefit from the operation, and (3) disability following the operation.

Mortality from the Operation.—On one occasion, to the great delight of an American audience, Moynihan said: "Statistics can be made to tell anything, even the truth." This is especially true of mortality percentages following surgical operations. The pride of the operator and his statistical skill in honestly juggling percentages make most astonishing apparent differences in statistics which are nearly identical. For instance, the early transference of the dangerously ill patient to the medical side of the hospital, because of a medical complication is helpful from the standpoint of surgical statistics. If operations, rather than cases, are counted, and a number of operations are performed on the same patient, a small series of cases may make a large series of operations. Mortality estimated by cases is high, estimated by the number of operations low, although the number of deaths would be the same. Again, a slight operation which does not cure will be a test in a bad case. If the patient does not react well, the curative procedure entailing a major operative risk may not be undertaken; consequently the patient is not given the chance for cure which a primary radical operation would have given.

Benefit from Operation.—We study surgical tragedies and endeavour in every way to hold operative mortality at the lowest point, but the mere fact that a patient recovers from an operation is not in itself sufficient. He was alive when the operation started and if he does not receive sufficient benefit to warrant the risk of life, the pain and suffering from the operation itself, the expense, and the loss of time, he has just cause for dissatisfaction. On the other hand, if a more radical operation would have resulted in correspondingly greater benefit, an increase of primary risk might have been justified.

Disability following Operation.—The question of post-operative disability is important. A surgical procedure should be planned so that the patient, with the least possible risk and loss of time, will receive the greatest possible benefit. To-day industry is on a full-time basis and every unnecessary day that the patient is disabled is an economic loss. To perform several operations when one would suffice, and thus attain an apparent, but not a true reduction in mortality, to use a type of incision not strictly indicated for the work at hand, or to use unnecessary drainage which will confine the patient to bed longer, or leave him with a greater liability to hernia, is unjust, and whether the patient is paying his own way, or is the occupant of a charity bed in the hospital, his own money or that of the hospital donors is being wasted. This economic loss is illustrated by a comparison, at ten-year intervals, of the hospital morbidity following operations on the biliary tract. The methods in use to-day, as compared with methods used ten years ago, save for each patient operated on in the clinic ten days of hospital time, or 36 years of the life-time of one person each year. I will outline briefly the general plan of procedure that is used in our clinic in operations on the hepatic and common ducts.

GENERAL PLAN OF PROCEDURE.

Incision.—The incision used in the majority of operations on the biliary apparatus has been that introduced by Bevan in 1908, slightly modified. It is started high in the angle between the costal cartilage and the right side of the sternal notch and extends down not more than 1.5 or 2 cm. from the middle line to a point opposite the umbilicus. The method of

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McArthur in leaving undivided the posterior aponeurosis, the peritoneum, and the nerves in the lower third of the incision is followed, because these are sufficiently mobile to be drawn down readily by a retractor. I have not known hernia to follow in the part of the incision so protected. The upper and lower angles of the incision are made from 4 to 5 cm. longer through the fat and subcutaneous tissues, which have no retentive power, than through the external aponeurosis and the muscle, which enables good exposure with less muscle damage. This type of incision permits ready exploration of the entire abdomen and, if cholecystectomy or appendectomy is necessary, the gall-bladder and usually the appendix can be brought into view. A middle-line incision is very effective, especially if splenectomy is necessary at the same time. Occasionally the transverse incision is used. It is understood, of course, that in the individual case any type of incision for the better exposure of the operative field will be adopted.

Exposure of the Common Duct.—The exposure of the common duct is the most important step in the operation. Since that part of the common duct, which is visible when the liver is retracted, passes more or less to the left, the inexperienced operator may forget that when the duct passes behind the duodenum it turns sharply downward and becomes parallel to the long axis of the body, close to the middle line. It has been shown that in about two-thirds of the cases the common duct runs through the head of the pancreas, and in about one-third behind it, which determines the effect of coincident pancreatitis on bile drainage in gall-stone disease and other infections of the bile-ducts. The gall-bladder and cystic duct are the ready guides to the common duct, but it should not be forgotten that the cystic duct is not at the bottom of the gall-bladder, but to the inner side, and that the pelvis of the gall-bladder may overlap the cystic duct and cover the preduodenal common duct. The pelvis of the gall-bladder must be carefully separated from the common duct and drawn upward until the cystic duct is exposed. While ordinarily the cystic duct passes directly to the common duct, not infrequently it opens on the posterior or upper surface of the common duct, or runs parallel with it for a distance, possibly even to the duodenum. Failure to recognise such anomalies may lead to accidental injury to the common duct. A second not infrequent source of accidental injury, especially to the hepatic duct in the operation of cholecystectomy, lies in the failure carefully to secure the cystic artery, which usually lies behind the cystic duct, close to the liver in the gall-bladder notch. When cut, the cystic artery promptly reacts and gives rise to a sharp hæmorrhage. If the operator uses rat-tooth forceps in this bloody angle he is likely to bite out a portion of the hepatic duct, an injury which, if not promptly repaired, leads to permanent obstruction. When a cystic artery escapes, a little basket should be made by a non-biting curved forceps, grasping the tissue round the bleeding-point until the artery can be lifted away from the hepatic duct in a manner to expose the vessel safely for ligation. As Brewer points out, the cystic artery occasionally comes from the superior pancreatico-duodenal, and runs up the face of the exposed common duct; if it is cut a very troublesome hæmorrhage results.

SECONDARY OPERATIONS.

Secondary operation on the common and hepatic ducts for the removal of stones, especially if the gall-bladder has been removed at the first operation, may be most difficult, particularly if dense adhesions bind the area in a confused mat, and a state of hepatitis or biliary cirrhosis makes the liver bleed at a touch. Ordinarily, in these cases, the common duct runs in the lower margin of the gastro-hepatic omentum with the portal vein and hepatic artery behind and above, but the portal vein may be displaced and opened accidentally. However, if the opening in the portal vein is grasped with the thumb and finger, the hæmorrhage can be easily controlled temporarily and several light, curved compression forceps without teeth slipped

under the fingers to hold the injured vein until it can be sutured with light catgut, as it is held and covered with fragments of the gastro-hepatic omentum. In secondary operations on the common and hepatic ducts following cholecystectomy, if the surgeon finds the place in the gall-bladder notch from which the cystic duct has been removed, and follows this close to the liver, aspirating frequently with a glass syringe and a long fine needle until bile is discovered, he may save time over quicker methods which may lead to troublesome accidents.

So far as the removal of stones from the exposed duct is concerned, it is not difficult ordinarily. But it is sometimes difficult to determine whether all the stones have been removed from the duct. Even when the duct is sufficiently large to admit the finger, for careful examination of its interior, stones may sometimes be left because they are high in the liver ducts where they cannot be detected, or they may be hidden in diverticula and the instruments pass by them into the duodenum. For this reason, after all the detected stones have been removed, an opening should be made by gentle instrumentation through the papilla into the duodenum, sufficient to permit undetected stones to pass into the duodenum later in any case. If the common duct approaches 1 cm. in diameter it should be explored, because stones, especially of the Fenger ball-valve type, may be present with very little physical evidence; in 30 per cent. of patients operated on for stones in the common duct, little or no jaundice exists at the time of operation. The importance of removing all stones from the duct cannot be over-estimated. In nearly one-third of the deaths which followed operation on the common duct for stone in our series, post mortem revealed that all stones had not been removed. Since post-mortem examinations are made on more than 90 per cent. of patients who die in the hospital, this checking up has been of very great importance in adding to our knowledge, although often humiliating to the surgeon. Perhaps some of the stones which are supposed to have re-formed in the common duct are left-overs.

THE QUESTION OF BILE DRAINAGE.

Duct Drainage after Operation.—Davis, by animal experimentation, was the first to call attention to the fact that bile drainage following operation on the common duct is necessary in the jaundiced patient when marked duct infection exists. Kehrer, whose large experience and high mortality following operations on the biliary tract give him an unusual opportunity for post-mortem examination, especially insists on hepatic duct drainage. In a series of cases of this particular description it was found wise to use hepatic duct drainage by the Robson catheter method. Following explorations for removal of quiescent or latent stones from the common duct, hepatic duct drainage is unnecessary. The duct is closed with interrupted catgut sutures, and a soft rubber drain is carried down into the pouch, the early description of which by the distinguished surgeon of Newcastle-upon-Tyne has given it the name in the States of "Morison's pouch." If there is much oozing of blood, especially from lacerations of the liver, it may be wise to carry a strip of salvaged iodoform gauze over the injured surface of the liver where it readily becomes adherent, and as the portal blood pressure is but 30 mm. will usually check oozing from slighter injuries which do not require suture.

Restoration of Normal Bile Drainage.—In my experience, next to gall-stones in the hepatic and common ducts, operative injuries during cholecystectomy are the most common cause for operations on the common duct. The most serious and difficult operations are those whose purpose is the restoration of totally interrupted biliary connexion between the liver and the intestinal tract. When the common or hepatic duct has been injured and the fact has been recognised at the time, failure successfully to repair the injured duct has not occurred in a single instance. The tissues are normally pliable and movable to a considerable degree, and if as much as 2 cm. of the duct is lost, the

severed ends can be drawn together by end-to-end suture and union takes place. If an anemic jaundiced patient is operated on weeks or months after the injury the story is very different.

In a period of 22 years, 104 patients were operated on for restoration of function between the hepatic and common duct and the duodenum, with a hospital mortality of 15. The late mortality in all the years since the operation was 19. Twelve of these late deaths were due to progressive biliary cirrhosis, one to carcinoma of the pancreas, 11 years after operation, and four to other causes not connected with the operation. Of the remaining 90 patients the present condition of 63 is known; 5 are well, seven in fair health, and 11 continue to have more or less symptoms. A study of the operative methods employed in these cases, from the standpoint of ultimate results, indicates that in any case in which a piece of the duct has been accidentally removed, and the injury not discovered and repaired at the time, thus necessitating secondary reconstruction, direct union between the stump of the hepatic duct and the duodenum is the best operation. One patient on whom I performed this operation, in 1903, as remained well, raised a number of children, and as survived typhoid fever and pneumonia. The ability of others of these patients to withstand the vicissitudes of life has been equally well demonstrated. The best results were obtained when a muco-mucous union between the proximal end of the hepatic duct and the duodenum could be effected. The method of Walton was used in two of the successful cases. A rubber tube connexion after the Sullivan method, which was popularised by Wilms, gave good temporary results in a few very difficult cases, but eventually results were unsatisfactory. The use of a T tube did not prove favourable, as its removal had a tendency to disturb the line of union. If a rubber tube is used, it is fastened in position with catgut and allowed to pass out spontaneously through the intestine, as it did eventually in our cases. When it is possible to bring the distal end of the common duct in apposition with the proximal portion by suture the use of a piece of catheter with a cuff on the end inserted into the hepatic duct and the distal end passed through the common duct into the duodenum as advised by McArthur gives excellent function. While the results of this series of cases have not been all that could be desired, they are not wholly unsatisfactory when the desperate pre-operative condition of many of the patients is considered.

Malignant Disease of the Common Duct.

In a number of instances sections of the common duct have been removed for cancer without a single ultimate cure, although in several instances the primary results were very satisfactory, one patient living for three years. Cholecysto-gastrostomy in malignant obstructions, whether in the head of the pancreas or in the common duct, has proved a remarkably satisfactory operation. For benign disease cholecysto-duodenostomy is preferable theoretically and it is usually practised in the clinic. In several doubtful cases which proved to be benign, cholecysto-gastrostomy has given good symptomatic results for many years.

PRE-OPERATIVE PREPARATION OF CHOLÆMIC PATIENTS.

Of the causes of death after operation, hæmorrhage and renal insufficiency, and infections of the bile-ducts are the most common. These conditions are directly related to the existing chronic obstructive jaundice, cholecystitis, biliary cirrhosis, dehydration, and chronic under-nourishment. Walters reviewed the post-mortem records, for a five-year period, of patients who died following operation on the biliary tract, and demonstrated that in 58 per cent. of the patients with jaundice, who died within the first week after operation, there was more or less blood in the abdominal cavity, usually the result of oozing from slight injuries to the liver. Of itself, the hæmorrhage was not always

sufficient to cause death, but it was a contributing factor. Walters then made a direct comparison between the cases with jaundice in which cholecystectomy had been performed and those in which cholecystostomy had been performed in conjunction with operations on the common duct. He found that in the cases of jaundice with infected ducts the death-rate following cholecystectomy was much greater than that following cholecystostomy. In jaundiced patients in poor condition, unless definitely indicated, a cholecystectomy is not added to the risk of the operation on the common duct, because of the danger to the liver which adds to the possibility of slow post-operative oozing.

Dehydration.—As these patients are dehydrated, and usually unable to take much nourishment, an attempt is made before operation to introduce a quantity of water into the system to aid renal elimination. As a rule it is difficult to accomplish this by mouth; it is best accomplished by proctoclysis, or subcutaneously. Walters found that the jaundiced patients who died following operation regularly had terminal nephritis with gradually increasing blood-urea before death, and that the result could be predicted as the blood-urea rose day by day.

Hepatic Insufficiency.—A third factor of importance in these cases is hepatic insufficiency, which runs parallel with renal insufficiency. In the presence of hepatic insufficiency, the blood-sugar may appear to be at the normal level when it is not truly so, because of the concentrated state of the blood from dehydration. Mann, in the clinic laboratories, has shown that if the liver is removed from a dog the animal goes into collapse in a few hours and dies. If, however, the dog just before death is given glucose in saline intravenously he is relieved at once, regains his strength rapidly, and in a few minutes appears to be restored. In such experiments, by continuing the glucose, dogs were kept alive for from 24 to 36 hours. Therefore, in the presence of hepatic insufficiency, 5 per cent. of glucose in plain water by rectum, or 3 per cent. in sodium chloride solution, is given subcutaneously. For subcutaneous administration the glucose must be sterile and chemically pure, to obviate late abscess formation. If the patient is very sensitive small amounts of procaine added to the glucose in sodium chloride solution, as recommended by Bartlett, will make it possible to give the infusion painlessly.

Hæmorrhage.—In order to check hæmorrhage, chloride of calcium, intravenously, has proved effective, and in certain cases blood transfusion is a remedy of remarkable efficiency. The blood contains prothrombin, which starts the clot, and antithrombin, which tends to prevent the prothrombin from clotting. When the tissues are cut, thromboplastin, which escapes from the tissues, unites with the antithrombin, and the prothrombin clots. The blood and tissues of the patient with hæmophilia are lacking in these three factors, and therefore his blood does not clot. Hæmophilia is transmitted through the female to the male; no thoroughly authenticated case of hæmophilia in the female has been noted. The remedy is blood transfusion; there is no cure. The second constituent of the blood-clot is the blood platelets. In purpura hæmorrhagica the blood platelets are deficient. The third constituent of the normal blood-clot is calcium. In the jaundiced patient the blood calcium is exhausted by combination with bile-pigments and acids, and this exhaustion may take place as early as three weeks after the onset of the jaundice, or, in some instances, calcium exhaustion may be delayed for many months. Failure of normal blood-clotting in the jaundiced patient is a specific indication of deprivation of blood calcium. Wright was the first to point this out. Cammidge and Robson added to the knowledge of the subject both experimentally and clinically. The difficulty was that the amount of calcium taken up either by the stomach or the rectum was always small, and in some patients was not observed. It remained for Lee and Vincent to give chloride of calcium in a 10 per cent. aqueous solution intravenously

with striking results. Sometimes following a single injection a clotting time even of 30 minutes would be reduced to nearly normal. Three injections on successive days usually are sufficient to restore blood-clotting to normal. The estimation of the blood calcium is made by a simple method described by Sanford. When the administration of calcium fails to reduce the clotting time to normal, blood transfusion will usually make a temporary reduction in the clotting time, sufficient for an operation to be performed.

The gradual development of these excellent methods of blood rehabilitation in the clinic was begun by Hallenbeck; later, Bell advanced the work, and it was carried to the present stage of efficiency by Walters. The careful preoperative management of jaundiced patients has greatly reduced the mortality from operations. In two years not a single patient so prepared died from hæmorrhage following the operation.

UNEXPECTED DEATH, ESPECIALLY IN CHILDREN,

WITH COMMENTS ON STATUS LYMPHATICUS.*

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THE expert pathologist after making a post-mortem examination upon a case of unexpected death, especially in an infant, is often forced to admit that he really does not know the cause of death. The organs may appear normal—macroscopically at any rate; or if lesions are present they may not seem sufficient to be fatal. On account of the youth of the patient he is unable to take refuge in the diagnosis of "fatty heart"; instead he is tempted by that of "status lymphaticus." In such circumstances, however, there is always the possibility of an acute or of a terminal infection, as illustrated by the following six examples.

Six Examples.

CASE 1. Early Tuberculosis; Death from Terminal Infection with *Streptococcus faecalis*.—Male, aged 9 months, admitted to the Royal Liverpool Children's Hospital under the care of one of us (R. C. D.) with prolapsed rectum of six weeks' duration and bronchitis. Past history good. The buttocks were strapped, and the prolapse was cured. No temperature during first 12 days in hospital; 24 hours before death the father was told that the child was going on well. Next day, however, at 10 A.M., he became very ill, the tongue and mouth were dry, the temperature rose to 102° F., and he died at 5 P.M. after seven hours' illness. The father was so perturbed by the unexpected death that he threatened proceedings against the hospital.

Post Mortem.—The examination was made 20 hours later. A caseous patch of tubercle the size of a cob-nut present in middle lobe of right lung, and enlarged caseous glands around right bronchus. A few miliary tubercles present in both lungs, and on peritoneal surface of liver and spleen, but none were found in kidneys. Lower end of ileum contained two early minute tuberculous ulcers; peritoneal coat unaffected. Some mesenteric glands were enlarged and beginning to caseate. Tonsils appeared normal. Brain appeared normal.

It was difficult to explain the slight but sudden rise of temperature and especially why the child died. Death was not due to miliary tuberculosis, because there was no clinical evidence of it, and the tubercles

found were too few; this was subsequently confirmed by sections of the liver and kidney, which showed no tubercles. There was no clinical nor macroscopic evidence of meningitis; this was subsequently confirmed by sections of the brain around the Sylvian fissure. The brain of a tuberculous case with slight symptoms of meningitis may appear normal macroscopically, yet microscopic examination of the Sylvian fissure region may reveal inflammatory exudate and tubercle bacilli. This has been observed twice at the Liverpool Royal Infirmary, on a female, aged 20, and on a male, aged 15. Cultures from the heart-blood and the spleen both grew a streptococcus in pure culture. It gave the reactions of *Streptococcus faecalis* (Hohlman's classification) when tested in lactose, salicin, and mannite broth; the hæmolytic reaction when tested against suspended human red blood corpuscles was "indifferent."

Conclusion.—The child died of a terminal infection with *Streptococcus faecalis*, which almost certainly entered the blood-stream from the minute ulcers in the ileum. Had it lived, death would probably have occurred a few months later from acute miliary tuberculosis.

CASE 2. Tenotomy; Death apparently from Status Lymphaticus, really from Acute Encephalitis.—Male, aged 6 months, admitted on Oct. 6th to the hospital with right congenital talipes equino-varus, under the care of one of us (R. C. D.). Child very well nourished, appeared quite healthy; bowels regular, temperature normal. On the 7th at 3.30 P.M. subcutaneous tenotomy of the tendo Achillis and wrenching of the right foot were performed under ether. The child appeared perfectly well after the operation. Next morning (the 8th) the temperature rose for the first time, reaching 99.6°, but was normal at night. On the 9th, at 7 A.M., the child became blue; at 9 A.M. it vomited some apparently blood-stained material and passed a loose green stool. The temperature was subnormal, but the pulse 120 and respiration 60. At 2 P.M. the temperature was 102° and respirations 60. The child died suddenly at 8.30 P.M. after about 13 hours' illness. There were neither convulsions nor nystagmus. A catheter specimen of urine was normal.

Post Mortem.—The examination was made 16 hours after death. Thymus appeared much enlarged, its maximum length being 8½ c.mm., its weight 27.4 g. Spleen weight 15.5 g., normal. The stomach, which was beginning to autolyse, appeared normal, but contained an ounce of blood-stained fluid. Contents of duodenum bile-stained. Mesenteric glands appeared about normal size, but there was slight enlargement of the Peyer's patches and solitary follicles of the intestine. Liver rather soft—microscopically it showed a moderate amount of congestion and fatty infiltration. Kidneys normal—confirmed by microscopic examination. Brain and other organs appeared normal.

It was difficult to account for death; but a certificate of status lymphaticus was given, as the thymus weighed 27.4 g., though the spleen was not enlarged and there was little other evidence of lymphoid hyperplasia. The weight of the normal male thymus at 6 months is stated to be between 2.25 and 13.5 g., and its length at 7 to 9 months to average 5.9 cm (Vierordt).⁴ Nevertheless this diagnosis was felt to be unsatisfactory, so cultures were made from the spleen, but only *B. coli* grew. This organism was probably a post-mortem invader, especially as no bacteria were found in sections of the kidney, liver, or brain.

Since the cause of death was still unexplained the brain, preserved in formalin, was sent to Dr. G. Watson, of the County Mental Hospital, Rainhill. He was especially requested to examine the medulla. Dr. Watson reported as follows:—

"Thirty-two blocks were cut and examined. The principal lesion was a vascular wall infiltration—the so-called 'perivascular infiltration.' It was most marked in the medulla and adjacent spinal cord, the pons, and crura cerebri particularly in the grey matter. It especially affected the veins, and consisted chiefly of lymphocytoid cells with few developing plasma cells forming a cuff or sleeve which was often very large. The vessels were congested with hæmorrhages, thromboses, and necrotic foci were absent. There were also numerous islets of lymphocytoid and other cells in the tissues—apparently apart from the vessel. Many of the anterior horn cells of the cord were rather severely degenerated and so were groups of nerve cells in the

* Read at the Liverpool Medical Institution, April, 1923.

pons, medulla, and crura, but the cells of the oculo-motor nerves were practically normal. In the cerebral and cerebellar hemispheres, including the basal ganglia, there was little change beyond a few minute inflammatory foci in the grey matter, some acute oedema of the nerve cells, and a slight infiltration of the meninges. No organisms of any kind were found."

Conclusion.—The child therefore died of acute meningo-encephalo-mylitis, which proved rapidly fatal, partly because it attacked the medulla. The disease resembled early encephalitis lethargica. The absence of ophthalmoplegia is consistent with the absence of lesions in the oculo-motor nuclei. The absence of lethargy is possibly connected with the absence of ophthalmoplegia. It has been suggested that the two are usually associated, because "the nucleus of the third nerve and certain of its emergent fibres bear intimate relation to the afferent fibres streaming towards the thalamic region, neopallium, &c." (Reports on Public Health).³

CASE 3. Fulminating Pneumococcal Pneumonia without Consolidation.—Male, aged 15, lived in a Liverpool industrial school. On March 1st, 1910, he was working from 7 A.M. to 5 A.M.; after breakfast, at 9.30 A.M., the governor noticed him looking blue and cold, but he stated, "I feel all right, Sir." He was, however, sent to the kitchen fire to warm himself. At 11 A.M. he still maintained he was quite well, but at 2 P.M. complained of headache, vomited, and was put to bed: the temperature was 102°. Later he became delirious and comatose. Death occurred at 4 P.M. after 1½ hours' illness.

Post Mortem.—Carried out 12 hours after death in the institution. The body was that of a well-nourished boy. Nothing abnormal was detected, except slight congestion of the brain, redness and enlargement of the bronchial lymphatic glands, and redness of the trachea, which contained some rothy blood-stained mucus. There was also a moderate amount of oedema and congestion of the lungs, but no trace of consolidation either to the naked eye or on palpation. The pleura contained a few petechial hæmorrhages.

The dramatic nature of the illness and the enlargement of the bronchial glands suggested the possibility of pneumonic plague. Smears were therefore made from the lung juice and examined microscopically. They swarmed with Gram-positive capsulated diplococci resembling pneumococci. A mouse was injected with the blood from the lung and died two days later from typical pneumococcal septicæmia. Sections showed acute bronchitis, also acute congestion of the lungs with a trace of inflammatory exudate and a light deposit of blood pigment. Clusters of pneumococci were demonstrated in the bronchi and lung alveoli. There was also advanced parenchymatous degeneration of the kidney and extensive deposits of blood pigment.

CASE 4. Fulminating Pneumococcal Pneumonia without Consolidation.—Male, aged 15, living in the same industrial school. On Nov. 15th, 1912, he received a slight kick on the leg while playing football. He was kept in bed, a mentation applied, and seen at mid-day by a doctor, who found nothing wrong except a slight bruise. Shortly afterwards he complained of headache; at 2 P.M. he vomited and the temperature rose to 101°. Later convulsions occurred, and he died seven hours after the acute symptoms developed.

Post Mortem.—The post-mortem and microscopical appearances were almost exactly similar to those of the last case. Pneumococci were demonstrated in the lung juice and confirmed by inoculation into mice. No pneumococci grew from the cerebro-spinal fluid; sections of the cerebral cortex revealed no meningitis.

These two are the most striking examples of 15 cases of acute pneumonia with four deaths which occurred in two small epidemics in the industrial school in 1910 and 1912 (Glynn,¹ 1913). In one of the remaining two deaths—that of another boy of 15, where the illness lasted much longer, namely, about 30 hours—the thymus was greatly enlarged. It weighed 56 g., the middle measured from above downwards 5 cm., and the right lobe 8½ cm. McGowan and McNeil² (1913) independently described similar but larger series of cases in an industrial school near Edinburgh.

Two cases of fulminating pneumococcal pneumonia in adults which are remarkably similar to the last will next be described; they also illustrate the occasional

difficulties of making a post-mortem diagnosis when death occurs unexpectedly.

CASE 5.—Female, aged 18, was always healthy and worked as usual on the morning of May 25th, 1918. In the afternoon she complained of headache; about 8 o'clock she vomited. Next morning at 9 she was found dead on the sofa, still fully dressed.

Post Mortem.—The examination was made 36 hours after death. The lungs were definitely congested but not consolidated. The bronchial glands were enlarged and dark red, again suggesting the possibility of pneumonic plague. The thymus was "considerably enlarged"; the record of weight has unfortunately been mislaid. As the diagnosis of status lymphaticus was not satisfactory, films were made from the lungs and pneumococci found. Two mice inoculated with the lung and gland juice respectively died in 24 hours of pneumococcal septicæmia. Sections of the lung showed intense congestion, some of the lung alveoli being filled with red blood corpuscles. Fibrin was practically absent, and leucocytes were absent. Enormous clusters of pneumococci were present. The kidney showed profound cloudy swelling, many of the tubules being completely degenerated, but unlike the preceding cases, this case showed no blood pigment.

CASE 6.—An army sergeant, in civil life a cotton merchant, aged 42, returned home on leave in December, 1918. His health was good, but after a week he complained of a slight sore throat. A doctor friend examined him one afternoon, found his temperature was normal, and prescribed some lozenges. On the same evening upon going to bed he vomited once, but otherwise had a good night. At 9.15 next morning his wife brought him breakfast, but he vomited again and could not eat it. She went out of the room for a few minutes, leaving him sitting up in bed. On her return he was unconscious and died almost at once.

Post Mortem.—The examination was made two days after death. The trachea was dark crimson and both lungs were partially consolidated, especially the posterior part of the right upper lobe: they weighed 1 lb. 10 oz. and 1 lb. 8 oz. respectively. Spleen, weighing 13 oz., difficult. Brain slightly oedematous. Heart, weighing 13 oz., normal. A persistent thymus found, divided into two lobes, the right measuring from above downwards 6.2 cm., the left 5.5 cm.; transverse diameter 3 cm. Microscopical sections cut through two portions of thymus showed that about three-quarters of it was fat, but one-quarter contained lymphoid tissue and Hassel's corpuscles. Lymphoid follicles at root of tongue enlarged, but no enlargement of Peyer's patches nor of the solitary follicles in the intestine. Microscopical films from bronchus showed many organisms—viz., Gram-positive diplococci resembling pneumococci, streptococci, and Gram-negative bacilli resembling *B. influenzae*. The lung juice and spleen juice showed organisms resembling pneumococci. Two mice were injected with the lung juice; both died from typical pneumococcal septicæmia. Cultures of the lung juice grew *Staphylococcus albus*, a *Streptococcus longus*, and pneumococci. No influenza bacilli were cultivated on bullock's blood medium. Sections of two portions of the lung showed intense congestion; groups of alveoli contained serous exudate and a few red blood corpuscles. There was a very extensive deposit of blood pigment, not only in the lung, but also in catarrhal cells and blood vessels. Pneumococci were demonstrated in clusters, but no influenza bacilli.

Comments.

It is necessary to refer again to status lymphaticus. One of the first difficulties in diagnosing this condition is the contradictory statements regarding the weight and size of the normal thymus gland at varying ages. Data concerning these points are at present being collected by a committee of the Pathological Society on behalf of the Medical Research Council; the secretary, Prof. E. Emrys-Roberts, of Cardiff, would welcome information regarding the size of the thymus "in all subjects of 15 years or over, and in all cases of sudden death (anaesthesia, injuries, burns, &c.) in apparently healthy persons of any age."

In our opinion there was undoubted thymus enlargement in Case 2, the infant dying after tenotomy, and in Case 3, an industrial school-boy, aged 15, dying of fulminating pneumococcal pneumonia. It is noteworthy that McGowan and McNeil² also observed a similar thymus enlargement in "several" of their pneumonia autopsies. It is also noteworthy that the thymus was persistent in Case 5, the girl of 18, and in Case 6 the man of 42 dying of fulminating pneumonia.

[†] It is interesting that all five patients—including the third industrial school boy—dying of fulminating pneumococcal pneumonia, vomited.

The present state of our knowledge suggests that persons with enlarged or persistent thymus are in a state of unstable equilibrium and easily killed by a shock or an infection.

In conclusion, it is obviously a grave error to attribute an otherwise unexplained death solely to status lymphaticus, without making a bacteriological examination—supplemented if necessary by a microscopic examination of the brain. When deaths like these are the subject of a coroner's inquest such an investigation is essential. Yet how often is it done? The coroner and his officials are apt to think that the doctor who has "looked inside" the body of a person probably dead from natural causes, but who next recommends *further investigation* to ascertain the cause of death, is either deliberately wasting public time and public money, or is a fool!

References.

1. Glynn, E. E.: Quart. Jour. Med., 1913, vi., 391.
2. McGowan, J. P., and McNeil, C.: Jour. Path. and Bacteriol., Camb., 1913, xvii., 412.
3. Reports on Public Health and Medical Subjects (Ministry of Health), No. 11, Encephalitis Lethargica, 1922, 127.
4. Vierordt, Hermann: Anatomische, physiologische und physikalische Daten und Tabellen, 1906, pp. 43, 129.

METASTATIC GONORRHOEA.

Being the Opening Remarks in a Discussion before the Medical Society for the Study of Venereal Diseases

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THE name chosen for this discussion has obvious objections, but it is difficult to find an equally trite name as a substitute. The term "metastatic gonococcus infection" is free from etymological criticism but is cumbersome. The meaning of "metastatic gonorrhoea" is at least free from ambiguity.

Anatomical Classification.

Based upon anatomical considerations gonococcus infections may be usefully divided into five categories:

- (1) *The primary focus of infection*: urethra, cervix uteri, conjunctiva, &c.
- (2) *The zone of local extension*: prostate, seminal vesicles, epididymis, endometrium, Fallopian tubes, peritoneum, &c.
- (3) *A septicæmia*—i.e., a general blood infection without focal lesions.
- (4) *A pyæmia*—i.e., a general blood infection with focal lesions.
- (5) *Focal lesions without general blood infection*—i.e., "metastatic gonorrhoea."

(1) and (2) are outside the scope of this discussion. (3) is a rare condition; the gonococcus does not tend to simple septicæmia, in this way resembling the staphylococcus group of micro-organisms to which, indeed, it properly belongs. (4) is not very uncommon; it is seen in the more severe cases of gonococcal arthritis and fibrositis, and in gonococcus endocarditis of the ulcerating or malignant kind. (5) is the group of gonococcus infections which forms the subject of our discussion proper; it belongs to the type of infective process which is conveniently termed "focal sepsis" and is very characteristic of the gonococcus.

Gonococcal Metastases.

Let us first state briefly what are the forms of metastatic gonococcal sepsis met with clinically, and then consider the mechanism of their production, their course, diagnosis, prognosis, and treatment.

1. The most common manifestation of metastatic gonorrhoea is, undoubtedly, that group of diseases termed generically *gonorrhoeal rheumatism*. This group includes arthritis, fibrositis, teno-synovitis, bursitis, myositis, and peri-neuritis. Spondylitis or arthritis of the spine is a not uncommon variety of this affection. The group will be dealt with fully by Sir William Willcox.

2. Infections of the *bones and cartilages*, apart from involvement of the joints, are rare, but they have been described; they are probably of the nature of periostitis and osteomyelitis, as in staphylococcus infections.

3. The *eye* is infected not infrequently, both in the *iris* and the *conjunctiva*. Gonococcal *iritis* is a well-known metastatic affection, tending to recurrence. It is probably the most frequent form of *iritis* next to streptococcal infection. An important feature is the long interval that may elapse between the date of the primary infection and the occurrence of the *iris* inflammation. It is much more common than syphilitic *iritis*, for which it is not infrequently mistaken. *Conjunctivitis* is usually a primary infection, but there is reason to believe that it, like *iritis*, may (rarely) be metastatic in origin.

4. The *heart*. It is highly probable that not a few cases of "simple" mitral disease owe their origin to gonococcus infection. This fact is, however, impossible of proof. Not so in "malignant" or "ulcerating" endocarditis, in a small percentage of cases of which disease it has been shown convincingly, both by blood culture during life and by post-mortem investigations, that the lesions have been due to the gonococcus. These are cases of gonococcal arterial pyæmia. The first authentic case of this kind was published in America by Thayer and Blumer in 1896. The first case in this country was described by Horder in 1904.¹

5. The *peritoneum*, as already stated, may be infected by direct extension from the primary focus. This, as might be supposed, is less uncommon in women than in men. The infection is usually local in its distribution. General peritonitis may, however, occur, and in this event the patient is almost always a female. Though sometimes difficult of proof, the assumption is usually made that the Fallopian tubes are always infected in these cases, and that the condition is never a true metastasis.

Questions of Pathogenesis.

What is the nature of the pathological process in metastatic gonorrhoea? In a good number of the joint cases, and in the cases of infective endocarditis due to the gonococcus, we are evidently dealing with a condition of pyæmia; from the blood-stream, or from the joints, or from both, the causative microbe can be isolated by careful technique in a sufficient percentage of the cases to warrant this conclusion. In the more chronic cases, and in those in which there is no evidence of a septicæmic process, we are uncertain if the symptoms are due to an actual colonisation of organisms in the affected tissue, or to the action of gonococcal toxins upon specially susceptible tissues. Knowing how elusive the gonococcus is, and how prone it is to lie hidden in the recesses of such structures as a joint or a tendon-sheath, we must not conclude that because (say) a specimen of joint puncture fluid yields no growth on even the most suitable media, the joint structures are not actually infected by the organism. Indeed, it is probable that in the majority of severe cases they are. But in other cases it is probable that the symptoms really are of the nature of an intoxication, the "focal sepsis" which gives rise to absorption of toxins being situated in one or other of those tissues referred to as within the zone of extension of the primary focus of infection.

A question of great importance in connexion with the pathogenesis of metastatic gonorrhoea is this: What organ or tissue acts as the immediate source of dissemination of the organism via the blood-stream? Is it the seminal vesicle or the prostate in the male? Is it the cervix, the endometrium, or the Fallopian tube in the female? For there seems little doubt that in the zone of local extension the spread of infection takes place via the lymphatics, whereas the metastatic foci appear as the result of an invasion of the blood-stream from one of these infected areas within the local zone.

¹ Trans. Path. Soc., vol. lviii., pt. 1.

Diagnosis.

The direct bacteriological proof that a suspected metastatic gonococcal focus of infection is actually of this nature is generally very difficult, oftentimes impossible. It is, indeed, rarely possible except in the severe cases. By direct proof I mean the isolation and identification of the infecting organism. Indirect bacteriological proof becomes, on this account, of great importance. But the serological tests of gonococcal infection are not as yet so precisely defined as to establish a good criterion for diagnosis. The agglutination method is not at present helpful, and, from the characters of the organism, the method does not seem very hopeful. The complement-fixation method, however, though for the time being it is still undergoing modification and trial, promises to be of much greater service. The recent exploitation of polyvalent antigen seems likely to reduce this method to greater uniformity of results than formerly. I am indebted to my colleague, Dr. Mervyn Gordon, for a reference to the most recent paper on this subject,² by Wilson, Forbes, and Schwartz. These authors raise two main questions: (1) Is the test specific, and (2) is the test an aid in diagnosis? The conclusions reached are (1) that the "negative results with control human sera indicate that the gonococcus complement-fixation test is specific," and (2) that it is an aid to the clinician in institutional work. Of cases in the acute and subacute stage 47 per cent. were positive, while of chronic cases 73 per cent. were positive. Of doubtful cases 60 per cent. were positive. Bearing in mind that it is in the chronic cases that we are denied the advantage of direct bacteriological proof, the smaller percentage of positive results in the acute and subacute cases is not such a material loss as might at first be thought.

Course and Prognosis.—Secondary Infections.

It is the chronicity, and the tendency to recurrences, of the gonococcal metastases that render these pathological processes so damaging and so disabling. We have no test by which we can form a judgment as to the immunity of the patient from a risk of recrudescence of his infection even many years after the last manifestation of his infection. I have seen an undoubted instance of gonococcal iritis occur 14 years after the primary infection was to all appearances "cured." No doubt instances of even longer latency will be cited.

The prevalence of secondary infections, by streptococci, staphylococci, diphtheroids, and coliform bacilli is notorious, and this tendency renders gonococcal infections all the more tedious and intractable.

Treatment.

The first principle in the treatment of metastatic gonorrhœa is drainage of the primary focus and of its zone of local extension. This involves highly specialised technique by those who are expert in genito-urinary surgery. Supplementary measures are both specific and non-specific. Of specific measures the use of gonococcus antigen is, I think, of proved value, though the best form of remedy is as yet undetermined. We shall, no doubt, hear advocates on behalf of the ordinary gonococcus vaccine, of detoxicated vaccine, and of gonococcus "immunogen" so prepared as to render the cell structure more easily digested by the tissues and containing some of the specific endotoxin in solution. It will be interesting to learn if any members of this Society have had experience of Broughton Alcock's method of using live gonococci intravenously. There appears to be no commonly adopted scheme of dosage of the ordinary killed coccus, doubtless in part due to the fact that we are dependent in most of the chronic cases upon a "stock" vaccine, and also to the fact that different strains of gonococcus used in their preparation differ widely in virulence.

Non-specific supplementary measures include all known methods of raising the general resistance of the patient. But amongst these methods no drug, so far as I know, has any special claim.

NOTES ON TREATMENT BY ELECTROLYSIS OF SOME AFFECTIONS OF THE NOSE AND EAR.

By A. R. FRIEL, M.D. DUB., F.R.C.S. IREL.

It is convenient to draw a distinction between the terms electrolysis and ionisation. The latter is specially applied to (a) the introduction into the tissues of particles called ions from a solution of a salt; (b) the exchange of ions between cells and fluids in the tissues under the action of the constant electric current. By electrolysis in this paper is meant (a) the introduction of ions into tissues from solid metals in contact with their surface or actually pushed into their substance; (b) the action on the tissues of chemical substances, such as acids or alkalis, formed at the point of contact between the tissues and the metal. With the effect due to the formation of alkali we are familiar when a sewing-needle, attached to the negative pole of a battery, is inserted into a hair follicle to loosen the hair and destroy its root.

When we desire to deposit an ion such as zinc in the substance of the tissues, and to act in the depth rather than on the surface, we use a needle or rod of the metal and plunge it right into the tissues until it reaches the exact part on which we wish to act. The zinc ion, whether derived from a solution of a salt or from a metallic rod, produces coagulation of the tissues into which it is carried by the electric current. The extent of penetration of the ion and the amount of coagulation caused depend on the strength of current used, and the time during which the current flows. There is a sharp delimitation, shown by the effect, between the tissues into which the zinc ion has penetrated and the tissues in the neighbourhood. The former being coagulated are killed, the latter are not even irritated. The effect is much more strictly delimited than when other physical or chemical agents such as heat and caustics are applied. Owing to the coagulation produced by zinc ions, hæmorrhage is avoided and the extension of sepsis is prevented through the occlusion of lymph and blood-vessels by a sterile coagulum.

Applications of Electrolysis.

Many cases of nasal obstruction are due to enlargement of the inferior turbinal. For the treatment of this Prof. Leduc recommended and practised many years ago the introduction of ions from a zinc needle. The diagram (Fig. 1) shows how this is done. The part of the needle outside the tissues as well as for 1/16 in. inside the point of entrance is coated with an insulating varnish—e.g., shellac. Where the needle passes through the nostril it is well to slip over it in addition a short piece of split rubber tubing to avoid any possible chance of leakage of current and a burn. A needle made of steel and electrolysed with zinc is easy to introduce. To it is soldered three or four feet of thin copper flex ending in a short piece of stiff wire which can be inserted into the positive terminal of the battery or rheostat. The negative electrode is applied to the arm or leg. A suitable dose is 15 ma. for 30 minutes. The current should then be reduced to zero. If an attempt is now made to pull out the needle it will be found that it is tightly held by the coagulum in the tissues; and if the attempt is persisted in considerable hæmorrhage will ensue and the good effect, due to the aseptic coagulation of the tissues in the substance of the turbinal, nullified. To loosen the needle the current should be reversed for a short time (ten minutes at ten milliampères). The development of alkali in immediate contact with the needle dissolves a thin layer of coagulum. The needle can then be withdrawn without pain or hæmorrhage. Beyond wearing a plug of cotton-wool in the nostril for an hour, no after-treatment is required. The procedure can be readily carried out under cocaine in the consulting-

² Journal of Immunology, vol. viii., No. 2, March, 1923.

room or the out-patient department. The patient has no need to lie up or stay away from work. The treatment is not nearly so severe as, either, cauterisation with the galvanocautery, as it avoids the risk of sepsis and inflammation, or, as cutting off a portion of the turbinal with scissors, with the danger of subsequent hæmorrhage. A similar procedure (Fig. 2) may be adopted for some cases of spasmodic sneezing with profuse watery discharge when the mucous membrane of the septum opposite the middle turbinal is much swollen. The zinc-coated needle is introduced into the soft tissues of the septum and a current of 10 to 15 milliamperes is passed for half an hour, followed by a reversal of the current till the needle can be easily withdrawn.

Chronic Maxillary Empyema.

In many cases the cause of chronicity is solely the irritation of septic fluid in the cavity. In these cases if the cavity is disinfected by zinc ionisation the discharge will usually cease at once. If for any reason—e.g., want of an operating theatre, or of skilled assistance to carry out the technique of ionisation—another method of treatment is necessitated, the following (Fig. 3), which has proved successful in four consecutive cases, may be adopted. The cavity is punctured with a trocar and cannula, and washed out in the usual way, and any fluid remaining in the cavity blown out with the air douche. Into the puncture hole if possible, or if not, through an adjacent area, a strong needle coated with zinc is pushed. The needle where it passes through the nostril and under the inferior turbinal is insulated with rubber tubing. It is connected with the positive terminal and the negative electrode is applied to the arm or leg. A current of 15 milliamperes is passed for three-quarters of an hour, and after a short reversal of the current the needle is withdrawn. In one of the four cases referred to the cavity was washed out once subsequently, and in one of the others two electrolytic applications were made, as the instrument used on the first occasion was not satisfactory. Otherwise the patients had no further treatment of the antrum. What advantage for the uncomplicated case does this method present as compared with one of the usual operations? It is easily carried out

under local anæsthesia with little discomfort. There is no need for the patient to remain in bed; there is no plugging of the nose, no risk of hæmorrhage, and less damage is done to the tissues.

One of the factors incidental to the operation (not to the disease) which tends to promote chronicity is avoided. In the usual intra-nasal operations there is considerable damage to the naso-antral wall. This is formed of a layer of bone with a layer of mucous membrane on each side. Following the operations, granulations are likely to form around the artificial opening. These may exude fluid which it is impossible to keep sterile, and consequently a certain amount of septic fluid may be present to act as an irritant. In the electrolytic form of treatment there is only slight trauma, and the tissues adjacent to the puncture are sealed by coagulation so that exudation is limited.

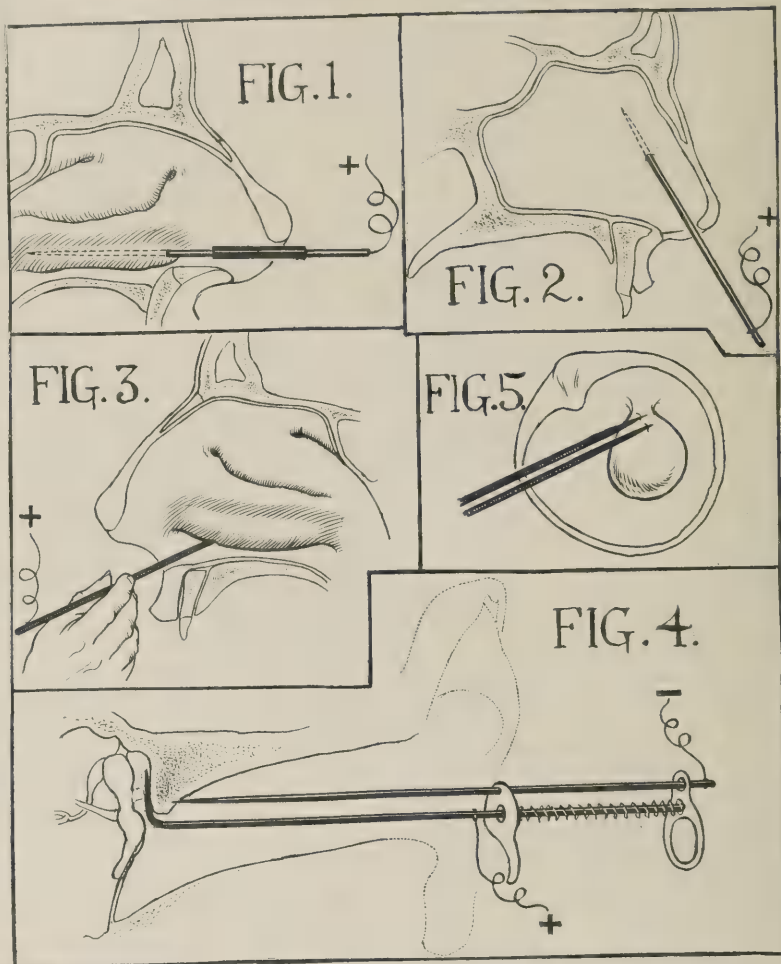
The same method of treatment may be adopted for an infected ethmoid bulla, and it will be possible here to see at a subsequent date the clean-cut opening resembling a perforation in a tympanic membrane.

Ear Conditions.

In certain cases of chronic otorrhœa in

which septic fluid is present in a situation inaccessible by ordinary means, it is an advantage, from the point of view of treatment, if a portion of the outer wall of the attic could be removed. This can readily be brought about by destruction of the tissues by electrolysis. (Fig. 4.) The strength of current which can be comfortably borne is 3–5 ma. It should be kept flowing for from half to three-quarters of an hour. Local anæsthesia with Bonain's fluid allows the necessary manipulations to be carried out with little difficulty.

For the treatment of polypi and large granulations I have found nothing so efficacious as zinc electrolysis. I have had frequent opportunities of treating such cases in children. A little cocaine and adrenalin solution is first applied. One or two dry cells furnish ample current and are convenient. An effort is made to introduce the points of the needles either through, or alongside, a polypus into its base (Fig. 5) and so to destroy its nutrition. When one examines an ear a few days subsequent to this treatment it is surprising to find the polypus gone and no sign of inflammatory



1. Introduction of zinc needle into the inferior turbinal. 2. Introduction of zinc needle into the soft tissues of septum. 3. Introduction of zinc needle into the naso-antral wall. 4. Destruction of portion of the outer wall of the attic. 5. Destruction of polypus.

reaction. After the polypus has disappeared some cases do not require zinc ionisation to cause the otorrhœa to cease. The cause of chronicity was the irritation due to the polypus and to the decomposition of its secretion.

The adoption of electrolysis, with or without subsequent ionisation, permits of an increase in the number of cases of chronic otorrhœa which can be cured without much difficulty.

TRAUMATIC ASPHYXIA.

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THIS somewhat rare condition has been defined as a "diffuse ecchymosis of the face and neck resulting from compression of the trunk" (Lejars¹). A case recently admitted to the Middlesex Hospital was a very good example of this condition.

A Recent Case.

CASE 1.—A male, aged 19, was lying flat on a hoist which moved up and crushed him between it and a trap-door which failed to open. He was held in this position for about 20 minutes. On admission his face and neck were much swollen and of a deep plum colour which ended at a definite line about the level of his thyroid cartilage. Subconjunctival ecchymoses were present in both eyes; the right pupil was slightly larger than the left, but both reacted to light. Some slight bleeding took place from the right ear, but there was no fracture of the base of the skull. Bruises were present over the right shoulder, the right side of the sternum, and the upper right costal cartilages. An angular deformity was present over the lower thoracic and upper lumbar vertebrae; the knee-jerks were not elicited. The patient was quite conscious but very irritable; respiration 60, hurried and difficult, pulse 132, temperature 96°F. The urine contained no abnormal constituents.

By next day the colour of the face and neck was slightly deeper, and the "collar line" was well marked; pulse 120, respirations 36, temperature 99.2°. The colour gradually faded from the face and neck, no colour changes usual in ecchymosed tissues taking place. In the conjunctiva, on the other hand, the usual colour changes appeared as in the other bruised situations. A skiagram showed several slight linear fractures of the upper end of the right humerus and of the glenoid. The spine condition was recognised as a healed Pott's disease. In about 14 days the colour of the face and neck was almost normal and the patient looked much thinner about the face than on admission. A troublesome cough developed a few days after admission but quickly cleared up. Night-terrors, in which the patient seemed to be living through his accident again, were present from the start, but soon disappeared under the influence of bromides.

Several pathological investigations were carried out on this case, but no marked deviation from the normal blood CO₂, alveolar CO₂, and basal metabolism could be detected. A detailed qualitative and quantitative examination of the urine likewise revealed nothing abnormal.

Two Unpublished Cases.

About 40 cases of this condition have been described and two other unpublished cases were admitted to the Middlesex Hospital under the late Sir Alfred Pearce Gould in 1911; they are as follows:—

CASE 2.—A male, aged 20, was crushed between a lift and trap-door and held in this position for five minutes. He was admitted quite unconscious and bleeding from the nose. His extremities were cold and pale and his limbs flaccid; his face and neck down to a sharp line at the level of his thyroid were deeply cyanosed and almost black. There was marked dyspnoea and a frothy blood-stained fluid was expelled from the mouth with each breath. The eyes bulged; the pupils were slightly dilated and did not react to light; the corneal reflex was absent. Oxygen was administered for an hour and the colour improved. Fifteen minims of ether were administered subcutaneously. The tongue was now found to be much swollen, and on pulling it forward respiration was much improved. The patient became very restless and delirious, requiring restraint, but about four hours after the accident he had regained consciousness; the cyanosis was less, but the face was still very swollen. Subconjunctival hemorrhages appeared and the pupils now reacted to light. By next day patient was much improved; the pulse-rate had dropped from 160 on admission to 88, and the respirations were now only 20. A few signs appeared in the chest at the left base, but soon cleared up; the colour of the face and neck was normal by the fourteenth day.

CASE 3.—A very mild example of this condition. A female, aged 16, was run over by an omnibus, the wheel of which passed over her chest. Consciousness was not lost, but some disturbance of vision occurred. On admission the patient was slightly cyanosed about the head and neck, but there was no definite line of demarcation. (This is interesting in view of the absence of a collar in this case—see account of pathology below.) Respirations were rather hurried and subconjunctival hemorrhages appeared. The patient's condition was practically normal within a week.

Remarks.

The pathology of this condition is somewhat obscure, but from the literature of the subject several interesting facts emerge. Beech and Cobb² recorded a case in which a man was crushed in a freight elevator and presented the features of traumatic asphyxia. A portion of the discoloured skin was removed and microscopically the sole lesion found was a capillary dilatation, no blood being seen outside the vessels at all. Following the description by Beech and Cobb of their own and other cases, a mechanical theory for this dilatation was propounded, which is well summarised by Linington.³ He states that in the dissecting room it has been shown that the external jugular and to a less extent the internal jugular and vertebral veins are much less protected by valves than the subclavian veins. The pressure on the abdomen and thorax in accidents of the type described forces the venous blood into the right side of the heart, which, much engorged, allows a back pressure to take place into the superior venous system of which the superficial and less protected external jugular bears the brunt.

The "collar line" is produced by the counter pressure of the patient's collar preventing the venous dilatation; that this is so is borne out by a case (Bolt, quoted by Despard⁴) in which the patient was wearing a cap when the accident occurred and a non-coloured line was present where the cap had fitted the head. The cyanotic colour is thought to be due to the stagnation of de-oxygenated blood in the over-distended venous capillaries. Hueter, quoted by Beech and Cobb,⁵ produced this condition in rabbits by compression of the abdomen, and he concludes that part of the effect is due to pressure on the sympathetic nervous system of the abdomen and thorax, which helps to produce a vascular dilatation. In the case (1) described above it is interesting to note in this connexion that the right pupil was slightly dilated and that the right side of the trunk seems to have received the worse crushing.

From the clinical standpoint the condition can be diagnosed by the history of a crushing accident and the presence of a definite collar line. Treatment should be directed towards stimulating the respiratory centre and preventing the watery exudate into the bronchioles that frequently occurs in this condition; the administration of oxygen, combined with the use of heroin and atropine, seems to have given good results. The immediate prognosis should be guarded; the asphyxia may be progressive and terminate fatally, as in a case described by Russell.⁶ The ultimate prognosis is very good and a recognition of the terrifying condition will reassure anxious friends in a dramatic fashion.

I publish this case by kind permission of Mr. Shorney Webb.

References.

1. Lejars: *Urgent Surgery*, 1914, i., 210.
2. *Annals of Surgery*, 1904, xxxix., 481.
3. *THE LANCET*, 1915, ii., 911.
4. *Annals of Surgery*, 1909, xlix., 751.
5. *Ibid.*, 1904, xxxix., 481.
6. *THE LANCET*, 1915, ii., 1052.

DEATH OF DR. J. H. CAMPBELL.—James Hamilton Campbell, M.D., C.M. Glasg., who died on June 12th at his residence in Glasgow, graduated in medicine and surgery at the University of that city in 1890. After holding junior house appointments at the Glasgow Royal Infirmary, he took up the practice which his father had carried on at Partick. An enthusiastic cricketer, his name was so closely identified with the game that on his death being announced the mid-week matches of the West of Scotland Club were postponed. Dr. Campbell left a wife, a son, and three daughters.

A CASE OF LYMPHÆMIA.

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THE patient was a male who at the date of his death in July, 1921, was 49 years old. He was a healthy active man until the onset of lymphæmia, and there was nothing of importance in his previous history. During the war he served in the Gallipoli campaign and subsequently went to the United States to carry out experiments with poison gas. Whilst in America he first noticed enlargement of the cervical glands and he was found to be suffering from lymphæmia; he was ordered small doses of arsenic which he took irregularly. He first came under our notice in January, 1919, and the clinical progress of the case with the alterations in the white cell content of the blood were observed over a period of two years and six months. Charts 1 and 2 have been prepared to show the successive changes in the white cell content of the blood. The lymphocytes (represented by an interrupted line) include both the large and small types of cell, and also the intermediate type, which was found to be the most common variety whilst the patient was under observation. The large hyaline cells, the eosinophil and mast cells are included in the total white cell figures, but as they were never present in the blood in abnormal relative proportions at any time during the illness they will not be referred to further.

Clinical Observations.

The period during which these observations were made may be divided into four parts for the purpose of description: (1) The condition when the patient first came under observation; (2) the acute exacerbation; (3) the period of quiescence; (4) the final illness.

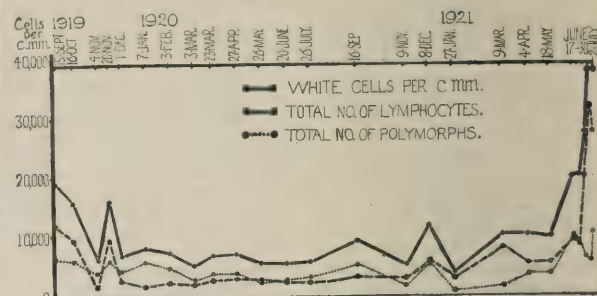
1. *Condition at Period of First Observation.*—When the patient first came under our notice on Jan. 14th, 1919, his condition was as follows: Cervical glands of both sides so enlarged as to produce gross deformity; axillary glands moderately and inguinal glands slightly enlarged. Spleen easily felt on inspiration; its edge round and hard. Nothing further found on physical examination and patient felt fairly well. The blood count was as follows: Red cells 6,125,000 per c.mm.; leucocytes 18,000 per c.mm.; differential count: polymorphs 30 per cent., small lymphocytes 50 per cent., large lymphocytes 16 per cent., large hyalines 4 per cent. Both total leucocyte count and differential count were inaccurate, as many cells were degenerated beyond recognition and only showed as faint bodies.

Patient was at once put on liquor arsenicalis, three minims t.d.s., and this was gradually increased, but six minim doses were the largest he could ever tolerate without diarrhoea. The cervical glands rapidly diminished in size, and in three months had completely subsided; no subsequent re-enlargement of these glands occurred. Axillary glands also diminished in size, but never returned to normal. Blood count improved considerably; he continued taking arsenic until April 7th,

when he went to the Channel Islands for a five weeks' holiday. During this holiday the acute exacerbation commenced.

2. *Acute Exacerbation.*—On the patient's return from his holiday on May 15th, 1919, the leucocytes were found to number 78,000 per c.mm.; eight days later they had risen to 115,600 per c.mm., the highest count ever reached. This period of acute exacerbation lasted a little over three months and is represented graphically in Chart 1. The condition of the blood was observed on 12 occasions and it will be seen that the curve of the lymphocytes follows closely the curve of the total white cells throughout the acute attack. At the height of this attack, on May 23rd, the total white cells rose to 115,600 (110,000 lymphocytes, 3000 polymorphs). It will be noted that throughout this period the polymorphs were highest in the count of July 8th (6700) and lowest in that of July 21st (890), but the average count was not far removed from 4000 per c.mm. This may be taken as the average of a normal blood—i.e., a blood containing 6000

CHART 2.



Quiescent period following on period of exacerbation, and lasting from November, 1919, till the final illness of June, 1921.

white cells per c.mm. should contain 70 per cent. of polymorphs and 25 per cent. of lymphocytes, giving a total content of 4200 polymorphs and 1500 lymphocytes per c.mm. The lymphocyte content of the blood during this period was never less than 9000 per c.mm. and at the height of the attack reached 110,000 per c.mm.

He was admitted into St. Thomas's Hospital for three weeks; arsenic administered throughout this acute phase. Benzol also given, commencing with 5 minims, then 10 minims, and finally 15 minims, twice daily. Benzol discontinued on June 18th after 34 days' administration; by July 8th leucocyte count had dropped to 29,300 per c.mm., but rose again to 43,400 by August 5th. On the 9th benzol was resumed for a further period of 18 days, when it was again discontinued, the leucocyte count having dropped to 10,480. Reaction of blood to benzol is well shown on Chart 1.

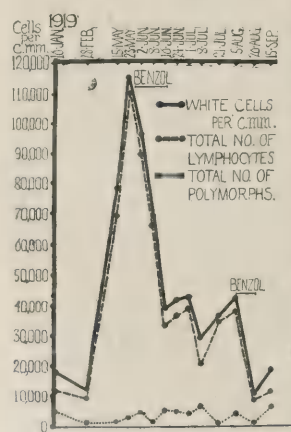
During this period the number of red cells was also estimated; this acute phase had no material influence on the red cell count.

1919.		Hæmoglobin per cent.	Colour index.
June 8th	5,400,000	82	0.75
„ 16th	5,200,000	80	0.77
„ 24th	5,070,000	80	0.80
July 8th	4,960,000	83	0.83
„ 21st	4,730,000	80	0.84
Aug. 5th	5,520,000	94	0.85

3. *Period of Quiescence.*—The acute stage lasted for three months, after which the blood picture settled down to a fairly constant level from November, 1919, until the final illness of June, 1921. During this time he was in fairly good health, able to do his work efficiently and without fatigue. Arsenic was given with occasional remissions of a few weeks, and he slowly developed a moderate degree of bronzing of the skin. Axillary glands remained slightly enlarged, but spleen diminished, and at times could not be felt. During this period (Chart 2) total number of white cells varied from 6000 to 10,000 per c.mm. On three occasions, in early part of period—Nov. 4th, 1919, Jan. 7th, and Feb. 3rd, 1920—normal counts were recorded both in total number of cells and in proportion of lymphocytes and polymorphs. For rest of period, proportion of polymorphs and lymphocytes almost equal, but towards the end lymphatic cells had again shown a very pronounced rise, although total number of cells remained about 10,000 per c.mm. Red blood cells during this period remained at about 5,000,000 per c.mm.

4. *Final Illness.*—On June 15th, 1921, he was taken ill with cough and fever; admitted into St. Thomas's Hospital on June 17th. Coarse friction present in left axilla; on June 22nd slight tubular breathing developed at apex of

CHART 1.



Period of acute exacerbation of lymphæmia, lasting over three months.

left lung. Soft râles audible throughout whole of this lung, and by July 1st left upper lobe showed the usual signs of consolidation, which persisted till the end. A moderate amount of sputum brought up, occasionally very slightly rusty. Tongue coated with brown fur in the earlier days, but later glazed and dry. Herpes not present. No purpuric eruption occurred and careful daily examination failed to discover a single petechial spot. Pulse-rate at first ranged between 90 and 100, and gradually increased in rapidity to about 140, presenting nothing unusual. The blood pressure varied between 100 and 130. Mental condition singularly clear throughout, though towards the end slight wandering and confusion developed. Intestinal hæmorrhage occurred on June 27th, 28th, and 30th; bulky stools of ordinary melæna type being passed. A few rose spots were noted on the abdomen on July 8th, death occurring on the following day.

In addition to general stimulants such as camphor, digitalin, and adrenalin he received three injections of an autogenous pneumococcal vaccine, and two intravenous injections of 1/32 gr. perchloride of mercury. These latter were each followed by a rigor and temporary collapse of such severity as to negative further injections. Four doses of benzol (M xv.) were given between June 27th and 29th, but we did not think it justifiable to give more.

Pathological Findings.

A blood culture was made on June 21st and some 5 c.cm. of blood were taken into tubes containing 20 c.cm. of glucose broth and distilled water. After 12 hours' incubation a heavy growth of diplococci was present in broth cultures. This organism proved to be a pneumococcus which agglutinated with type 1 antipneumococcal serum. The pyrexia continued and blood cultures were repeated on June 27th and 30th, and July 5th, and on all occasions the pneumococcus was isolated. In the culture made on the 5th, after melæna had been present for some days, a streptococcus was present in the blood culture and also a Gram-negative bacillus which gave the "sugar" reactions of the paratyphoid C bacillus (1920 and 1921), and when first isolated agglutinated to 50/6000 with paratyphoid B antiserum and 2000/5000 with paratyphoid C antiserum, made from a "C" strain obtained by us in the Balkans. Later, after several subcultures, the bacillus agglutinated to 500/6000 with paratyphoid B. and 5000/5000 with the paratyphoid C antiserum.

The blood serum was tested on three occasions, June 27th and 30th, and July 5th for type 1 pneumococcal agglutinins, but was negative throughout; on the last occasion the serum was also tested for agglutinins to typhoid and paratyphoid A, B, and C, but no reaction with a 1/25 dilution was observed. The stools were examined during the period of melæna for the presence of pneumococci, the faeces being plated on MacConkey and blood agar (Wordley, 1921). No pneumococci were isolated, nor was the presence of non-lactose-fermenting colonies noted on the MacConkey plates.

The blood condition during the final illness (Chart 2) is of interest. A leucocytosis which reached 38,000 per c.mm. developed. The polymorphs on June 17th numbered 10,000 per c.mm., two days after the onset of the illness; by the 30th they had dropped to 5900 per c.mm., but rose again to 10,200 on the last occasion on which the blood was examined. The lymphocytes, which numbered 9000 per c.mm. on the 17th, rose to 31,900 per c.mm. by the 30th, and showed a slight fall to 27,300 in the count of July 2nd. The terminal leucocytosis, after a period of 14 days of pneumococcal septicæmia, was entirely lymphocytic in character. The red cell content of the blood during the final illness showed a loss of almost 50 per cent., as the following figures show:—

Date.	Red cells.	Hæmoglobin per cent.	Colour index.
June 27th ..	4,270,000	80	0.92
" 30th ..	3,460,000	60	0.88
July 2nd ..	2,600,000	52	1.0

During this period melæna was present, but this serious loss of red cells could scarcely have been due to this cause alone.

Pathologically this case presents several features of interest. The acute leukæmic condition in which the white cells rose to 115,000 per c.mm. was due to an increase of the lymphocytic cells of the blood, the number of polymorphs remaining practically normal throughout the attack. During the quiescent period normal blood counts were obtained, but usually the proportion of lymphatic cells was increased. In the period of final illness, although a pneumococcal septicæmia persisted for at least 14 days, the leucocytosis, which was present, was due to a lymphatic increase in the white cells; no polymorph reaction was observed. The presence of three separate types of organism is an uncommon feature even although the culture was taken towards the end of a fatal illness, complicated by the presence of melæna. The paratyphoid C infection may have been derived from a convalescent case of this disease in a ward adjoining that into which our case was admitted.

References.—Dudgeon, L. S., and Urquhart, A. L.: *THE LANCET*, 1920, ii., 15. Andrewes, F. W., and Neave, F.: *Brit. Jour. Exp. Path.*, August, 1921, 157. Wordley, E.: *Jour. of Hygiene*, 1921, xx., No. 1, 60.

RADIUM IN THE TREATMENT OF UTERINE HÆMORRHAGE,

WITH A REPORT UPON FORTY-FIVE CASES.¹

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SEVERE and persistent uterine hæmorrhage, at any age, is a source of infinite anxiety to both the patient and doctor, and when the latter has exhausted the long and too often futile list of drugs, together with prolonged periods of rest in bed, he is constrained to recommend curettage. Many of the less severe cases are relieved by this measure; but in the type of case under consideration, relief, if any there be, is only measured in weeks. The patient is too soon in the status quo ante, and it becomes clear that something more radical must be undertaken. At or near the menopause the above palliative measures may suffice to pilot a patient through a stormy climacteric into the back-waters of post-menstrual life—only too often, however, at the cost of transforming her into a semi-invalid with the late prospect of complete neurasthenia. While this method is possible for the well-to-do patient who can afford to remain in bed, it is not feasible for the wage-earner or the mother of a family, and other means must be adopted to deal with the condition promptly and finally.

The methods advocated for this condition are: (1) Hysterectomy; (2) X rays; (3) radium; and the analysis of a report upon 45 cases treated by radium tends to show that it is the treatment of choice when available.

Selection of Cases.

The type of case under consideration is sometimes described as the "bleeding uterus"—a most descriptive term; more commonly it is labelled chronic metritis, fibrosis uteri, or chronic subinvolution. However debatable the pathology, the one distinctive clinical feature is excessive and uncontrollable hæmorrhage with absence of any pelvic lesion to account for it. This series of cases does not include those with ordinary causes of hæmorrhage; it includes only cases which had been dealt with in the usual way and had proved refractory to treatment. The criteria by which cases were selected were: (a) The persistence of severe hæmorrhage after operative treatment; (b) an advanced anæmia, with shortness of breath, headaches, cedema of legs, &c., which had been treated palliatively for some time; (c) cases where the patient had to spend some part of each month in bed.

¹ A paper read before the Section of Obstetrics and Gynecology of the Royal Society of Medicine on March 1st, 1923.

Excluding three cases in which an effort was made to modify the period rather than to stop it, there were 42 cases, the youngest being 29 years and the oldest 55 years. Three only were unmarried, and of the 39 married four only were nullipara.

Details of Series.

Number and Types of Operations.—Of the 45 cases 26 had undergone some form of operation or combination of operations, including dilatation and curettage, removal of polypi, amputation of cervix, oöphorectomy or salpingo-oöphorectomy, and some of the cases had been curetted more than once. The remaining cases had undergone medical treatment for variable periods or were so anæmic as to forbid any further effort at palliation.

Clinical Types.—Four cases were associated with fibroids, two of the interstitial variety, and two with small subperitoneal fibroids. The results were equally satisfactory, and no change could subsequently be detected in the subperitoneal tumours. While all the uteri were enlarged, they were broadly divisible into two groups which might be best described as (a) systolic uterus and (b) diastolic uterus. The systolic uterus was hard, firm, and regular, commonly straight and admitted a sound for from 3 to 3½ inches; it yielded little or no tissue to the curette and gave the characteristic rasp of fibrosis uteri. The diastolic uterus was bulky, retroverted, admitted a sound from 3½ to 5 inches, and generally yielded a thickened and oedematous tissue. An interesting point about this type of uterus was the fact that some months after irradiation it was indistinguishable from the systolic type.

Technique.—In all cases dilatation of the cervix and exploratory curettage were performed. Where the cervix and vagina were septic a preliminary cleansing treatment was carried out. In all cases the radium was placed in the uterine cavity, and only the gamma ray was utilised. The vagina was packed with gauze moistened with liquid paraffin, with the two-fold object of supporting the radium and of keeping the bladder and rectum away from the source of energy. A further precaution was adopted to maintain the bladder in a flaccid condition by the introduction of a self-retaining catheter into the viscus. In some cases it was necessary to stitch the vulva in order to support the vaginal plug.

Dosage.—In three cases of patients between the ages of 20 and 26, 50 mg. of radium were used for five hours. In the other cases 100 mg. were used for 24 hours, the object in the former cases being to influence the menstrual period, in the latter cases finally to end it. I am inclined to think that 100 mg. is an unnecessarily large quantity for the purpose, for in some later cases 75 mg. appear to have had the desired effect. A certain number of cases complained of pain while the radium was in utero, but no more than when a stem is left in the cervix, and it disappeared promptly with the removal of the radium. In a few cases post-anæsthetic vomiting was prolonged; it was quickly relieved on withdrawal of the radium. Some patients noted a frequency of micturition following irradiation, a condition which was quickly relieved by barley-water, citrate of potash, &c. Beyond the above, no untoward symptoms were noted. In all cases nocturnal douches of salt and water are suggested for a period of six weeks following the radiation.

Classification of Cases.—The cases were classified as follows:—

Group.	Age.	Cases.	Group.	Age.	Cases.
A	= 20-26	3	C	= 39-50	22
B	= 29-38	10	D	= 51-55	10

Details of Cases.

Group A will be considered in detail; the condition found and result of treatment in the other groups will then be summarised.

CASE 1.—Aged 20, married, no children. For one and a half years had been losing 14-21 days at a time and was only clear from 7-10 days. Dilatation and curettage in September,

1921, did not relieve her at all; she attended hospital as an out-patient in October, November, and December, and it was clear that something more would have to be done. In January, 1922, 50 mg. radium were introduced into the uterine cavity and left there for five hours. Late in January she had a period of four days, and from Feb. 28th another period lasting four days. In March and April more severe periods. In May she was admitted to another hospital, where an ovary was removed. Since then she has been quite well.

CASE 2.—Aged 23, a Jewess, single. Had been losing daily for seven months and was very anæmic; had already been in hospital twice for the same condition, the first time for six weeks' observation and palliative treatment, the second time for dilatation and curettage, after which she was better for three months, but then relapsed into the daily loss. She was now thoroughly demoralised, and despite her religion was anxious that hysterectomy should be done. In February, 1921, I dilated the cervix and introduced 50 mg. of radium sulphate into the uterus, leaving it there for five hours. She bled steadily for 11 days, during which time the vagina had to be plugged. For the next six months she was regular for from four to six days, during which time she was in sole charge of a hemiplegic father, and since then she has had no period at all. This, I think, must be attributed to the close confinement and hard work involved rather than to the influence of radium.

CASE 3.—Aged 26, married, no children. Had severe periods with pain for four years since marriage, necessitating a couple of days in bed per month. She was anæmic and had been treated with drugs for a considerable time. In January, 1921, 50 mg. radium sulphate was placed in utero for five hours. She has been regular every month since, three-day type without symptoms.

Group B.—Ages 29-38. There were ten cases; eight had had some form of operation, and two had been treated palliatively and had become steadily worse.

Group C.—Ages 39-50. Twenty-two cases; 11 had had some form of operation, and 11 had been treated palliatively, but with advancing anæmia and persistent hæmorrhage.

Group D.—Ages 51-55. Ten cases; five had had some form of operation and five had been treated palliatively.

Symptoms Following the Radium.

There was no further loss in ten cases; one period in 17, two periods in 11, and three periods in 4. The periods usually consisted of long-drawn-out "shows" varying from three days to three to four weeks, the actual quantity of blood lost being small. Exposure given immediately before a period usually resulted in a severe loss. In five cases radium had to be employed a second time; in three the first exposure would probably have sufficed, but the patients were so thoroughly frightened by two prolonged shows following the first exposure that it was deemed advisable to comply with their demands. In only two of these five was an anæsthetic necessary.

Vaso-motor Symptoms.—Flushing as an index of vaso-motor disturbance is liable to a very considerable margin of error, and consequently is open to legitimate criticism. Many women will omit mention of this symptom in a carefully-taken history, yet, when it is suggested to them, they will admit experiencing the symptom occasionally; where flushing is a real signal symptom it is mentioned spontaneously. The graver vaso-motor changes, as signified by a profuse perspiration or a generalised fall in blood pressure, are never omitted in the history, for they produce considerable distress. Consequently I listen patiently to the history, and if they do not mention vaso-motor symptoms I have carefully refrained from asking them, and in the after-result it was a fair conclusion that such symptoms did not exist.

In group A there were naturally no symptoms. In group B eight patients had no symptoms, and two complained of flushes; in this group vaso-motor symptoms might have been expected on the assumption that the ovary was being affected. In group C nine patients had no symptoms, four had flushing, three had flushing and sweating, and six complained of flushing before treatment which remained the same afterwards. In group D six suffered from flushes

before treatment and remained much the same; four made no mention before or after.

Causation of the Radium Menopause.

Is the radium menopause due to action upon the uterus, or upon the ovary, or upon both? The available evidence points to action upon the uterus solely in the majority of cases, and is based upon (a) clinical, and (b) experimental grounds.

Clinical Evidence.

In the younger women, aged from 29 to 38, only two out of ten mentioned flushes, where this symptom should have been pronounced, on the assumption that the ovary was influenced. Again, in the group aged 39-50 the symptom was not unduly increased, and only in three cases was sweating added to flushing. Histological evidence is difficult to obtain, for removal of the uterus following treatment by radium for this condition must be very rare. However, by the courtesy of Dr. Miles Phillips, of Sheffield, I have examined sections from two uteri after exposure to radium, and a section of the ovary from one of the cases; in the uterine sections there was a diminution in the number and size of the glands of the endometrium, and fewer capillaries than normal, but in the ovary there was no change suggestive of irradiation.

Experimental Evidence.

The normally placed ovary is 8 cm. away from the uterine cavity, and beyond the effective range of radium, but a prolapsed ovary would be very much nearer, and to some extent would account for variable results. The uterus of a cat being bicornuate, the conditions under which radium is used clinically can be reproduced by the implantation of the radium in one horn whilst the contra-lateral ovary is fixed by a stitch at 8 cm. distance from it. The experiment was performed in this way. A pregnant horn was opened and the foetus removed; the radium was then implanted and the horn closed by suture. The ovary of the same side was lightly attached to the wall of the uterus, and the opposite ovary was fixed at a distance of 8 cm. by suture and rubber tube. The radium was removed in 24 hours' time. This experiment was repeated, the animals being killed at intervals (12, 21, and 60 days).

In none of the experiments did the contra-lateral ovary show any macroscopic or microscopic change. In all the experiments the ovary, of the irradiated side, shows a profound change which varies and becomes increasingly severe with the prolongation of life subsequent to the exposure to radium. There is destruction of all the follicles, an increase of connective tissue, diminution of capillaries, and finally the ovarian tissue cannot be identified.

Changes in the Uterus.—The endometrium is notably attenuated to the extent of one-quarter or even one-sixth of the normal depth, and the stroma cells are largely replaced by connective tissue. The capillaries are fewer, and the uterine glands are much fewer in the shorter survivals after exposure; they have entirely disappeared in the experiments where the animal lived for two months after irradiation.

Contra-indications.—The only contra-indication is a previous pelvic inflammation; this is a very real danger, for the pelvis may become filled with an inflammatory tumour rising into the abdomen, the nucleus of which is an abscess seated deeply in the pelvis and which is very difficult to deal with. A case of this kind has occurred to me in treating a carcinoma of the cervix, where the risk had to be taken in order to treat the growth.

Relative Advantages of Radium, X Rays, and Operation.

Radium.—Radium is suitable for all cases except those complicated by inflammatory disease. There is no mortality and no morbidity, and the minimum amount of time is necessary for treatment—from three to seven days. There is no prolonged convalescence or stay in hospital or nursing-home. There were no failures in this series. The one drawback is the comparative scarcity of radium.

X Rays.—The use of X rays for the treatment of severe uterine hæmorrhage has been fairly successful, but is accompanied by very definite drawbacks. First, the X rays are utilised to destroy the ovaries; their use raises the objection that normal organs are being destroyed in order to influence an abnormal organ, and this is accompanied by a considerable proportion of cases exhibiting severe vaso-motor symptoms (38 per cent., according to Eden and Provis). Secondly, the treatment is prolonged, lasting three to four hours on two succeeding days, repeated at intervals of 21 days on four to six occasions. Thirdly, there is a danger that the treatment may be used without a diagnostic curettage. Fourthly, ulceration of the bowel, superficial burns, &c., have been noted. Finally, a certain number of failures have been noted.

Hysterectomy.—Despite its low mortality, hysterectomy is a severe operation, frequently associated with post-operative results which are difficult to assess—e.g., the profound depression and loss of morale not infrequently seen. There is a more or less prolonged period of invalidism following any abdominal operation, and a certain percentage of morbidity as shown by subsequent pain, herniæ, adhesions, and constipation. Nevertheless, the operation is satisfactory inasmuch as the bleeding is cured; the only criticism is that the subtotal operation leaves a useless cervix, too often a diseased cervix, and less frequently a cervix which may become the seat of a malignant growth, of which I have met one example this year. The drawbacks of this treatment to the wage-earner are the necessary length of stay in hospital and convalescence, and the problematical complete restoration of health.

Conclusions.

1. In my opinion radium treatment should be the method of choice in all uncomplicated cases of severe and persistent hæmorrhage due to chronic metritis, inflammatory disease of the tubes and ovaries constituting the sole contra-indication.

2. The radium menopause is not usually accompanied by any symptoms attributable to action upon the ovaries, and of all methods it produces the least disturbance of the patient's economic life.

Clinical and Laboratory Notes.

A NOTE ON THE DETECTION OF COAGULABLE PROTEIN IN FÆCES.

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THE difficulty of obtaining a clear filtrate from an emulsion of fæces, and the slowness with which an adequate amount of filtrate is obtained by the usual procedure, are probably responsible for the fact that comparatively few observations have been made on the presence of coagulable protein in stools. The significance of fæcal albumin has already been discussed in an earlier communication.¹ For the past two years I have investigated the clinical utility of an improvement in technique devised by Prof. W. Ramsden (here published at his request), whereby perfectly clear fæcal filtrates, suitable for protein-precipitation and coagulation tests, are obtained with comparative ease and rapidity.

The improvement consists in "half saturating" the fæcal emulsion with ammonium sulphate before filtration. It was based on the expectation that in this environment the voluminous soap gels would

¹ R. Coope: THE LANCET, 1920, II., 291.

encapsule all fat globules and bacteria, and at the same time shrink up into floccules readily removable by filtration. The test has the disadvantage that it detects only albumin, as any globulins originally present are salted out with the soaps. There is no evidence, however, that globulins, unattended by albumins, ever occur in fæces, and the above disadvantage is more than compensated for by the clearness of the filtrate, and the corresponding increase in delicacy of the albumin tests. Further, with the old procedure it was many hours or even days before enough clear filtrate was obtained for the test, whereas with the present method half an hour usually suffices.

About 20 g. of fæces are taken, and worked up with twice the weight of water—i.e., about 40 c.cm. at 50° C.—to a homogeneous cream. An equal volume of a saturated (54 per cent.) solution of ammonium sulphate is added and well mixed, and the mixture is filtered through ordinary filter paper. If the first runnings are turbid—as is sometimes the case, especially in the light yellow stools of a milk diet—they should be returned until the filtrate comes through perfectly clear. If the original fæces are fluid, the ammonium sulphate solution is added without previous dilution with water.

Five to ten c.cm. of the clear filtrate are taken, and tested for albumin by heat coagulation. Salicylsulphonic acid may be used as a confirmatory test. Trichloroacetic acid is not allowable, as it often produces some turbidity even in the absence of coagulable protein.

The reaction is positive only when a definite turbidity develops; on standing for some time a flocculent coagulum sinks down to the bottom of the test-tube. Occasionally very slight turbidities, only recognised with difficulty or when the test-tube is put into reflected light, occur in apparently normal stools. They should be disregarded. On boiling the filtrate there is often a perceptible change in colour, which must not, of course, be mistaken for the development of a slight turbidity.

The reaction of the fæcal filtrate is usually slightly acid, and it has never been found either too alkaline or too acid for heat coagulation. It should be added, however, that artificial acidification of the fæcal emulsion, even by so feeble an acid as boric acid, makes filtration very slow (owing presumably to clogging of the filter by free fatty acids), and the filtrate tends to be turbid.

The delicacy of the test varies considerably with different stools. In a series of control experiments, the minimal amounts of added blood serum which were detected in 100 g. of original fæces ranged from 0.125 to 0.5 c.cm. In infants a positive reaction is frequent, especially in diarrhoeic stools. In older children and adults, however, the presence of fæcal albumin is almost invariably due to some pathological process—usually bleeding, or exudation of serum into the gut. In a series of over 250 non-infantile stools, I have had but two positive findings to which no pathological explanation could be definitely assigned. The first was that of a laboratory worker, who during a severe cold showed fæcal albumin for two days. The other was that of an old man with obscure gastric symptoms, who was inordinately fond of black puddings. In both cases the albumin disappeared with the adoption of a milk diet.

NOTES ON TWO CASES OF ERYTHRÆMIA TREATED BY X RAYS. BY E. J. STOLKIND, M.D. MOSCOW AND SIENA.

THE following two cases¹ of erythræmia, or splenomegalic polycythæmia, successfully treated by X rays, are of interest.

CASE 1.—A male, aged 50, complained of frequent attacks of giddiness, weakness, fatigue, pain, &c. He had always enjoyed good health. About five and a half years ago he was suffering from loss of considerable quantities of blood (from hæmorrhoids), during which time he became so weak that he could not move. In February, 1921, he had hæmoptysis. At the end of 1921 he came to the West End Hospital for Nervous Diseases.

¹ These cases were shown in the Clinical Section of the Royal Society of Medicine on Feb. 9th, 1923.

Condition on Examination.—Severe cyanosis of the face, ears, lips, tongue, mouth, fauces, with bluish-red hands, cyanotic clubbed fingers, and injected conjunctivæ. Many cutaneous telangiectases on the face. Spleen felt about two fingers-breadth below costal margin, and tender. Liver also enlarged and palpable. Ophthalmoscopic examination revealed abnormally large veins in each fundus (fundus polycythæmicus). Urine contained albumin. Patient denied syphilitic infection, and Wassermann reaction was negative. Brachial blood pressure (Riva Rocci) 140 (systolic) and 90 (diastolic). The patient complained of intermittent pain in the right mandibular joint and of pain on movement of the joint, and of occasional cramps in the limbs, numbness in the legs, &c. He was unable to follow his occupation.

Blood Examination.—Blood counts on March 31st, 1922: Erythrocytes, 9,500,000; hæmoglobin, 150 per cent.; colour-index, 0.8; white cells, 16,400; polymorphonuclear neutrophils, 71 per cent.; eosinophiles, 2 per cent.; large mononuclears, 10 per cent.; small mononuclears, 14 per cent.; transitionals, 2 per cent.

Treatment.—For more than seven weeks I tried benzol from 3 to 6 c.cm. per diem, but it reduced the number neither of red cells and hæmoglobin, nor of white cells, and did not improve the subjective condition of the patient. For six months he was treated by sodium iodide, also without much subjective improvement. Blood count: Red cells, 7,700,000; hæmoglobin, 140 per cent.; white cells, 21,000. Venesection was tried without success.

From Nov. 16th to Dec. 29th, 1922, Dr. J. H. Douglas Webster made 11 full applications of intensive Röntgen rays (38 cm. alternate gap) to sternum, thighs, legs, and arms. The blood count two weeks after the last application was: Red cells, 7,000,000; hæmoglobin, 140 per cent.; white cells, 12,000; polymorphonuclears, 79 per cent.; eosinophiles, 1 per cent.; monomorphonuclears, large 6, small 13 per cent.; transitionals, 1 per cent.

Röntgenotherapy of the bones was of considerable use; it relieved the pains in the limbs, &c., and generally improved the subjective condition of the patient. He is now much stronger; the limbs are not so heavy, and he feels no more painful cramps; he can now easily move his head in all directions, and walk freely; he is not so shaky.

CASE 2.—A woman, aged 43, had been suffering at times from bleeding from the nose and gums, headaches, rush of blood to the head, red face, tinnitus aurium, &c. Brachial blood pressure: 200 (systolic) and 140 (diastolic), Riva Rocci. Spleen palpable and enlarged. Blood count: Red cells, 7,600,000 to 8,300,000; white cells, 15,000; hæmoglobin, 105 to 115. This was also a case of erythræmia, and 14 X ray applications were made to the bones, resulting in considerable subjective improvement. Blood count ten weeks after the fourteenth application: Red cells, 5,600,000; hæmoglobin, 123; white cells, 11,200; four and a half months later when examining the patient, I found: Red cells, 8,500,000; white cells, 10,900; hæmoglobin, 115; but the patient no longer complained of any symptoms.

I have to thank Dr. Braxton Hicks for the blood examination in Case 1, and Dr. H. Guggenheimer for the opportunity of examining Case 2.

Hampstead, N.W.

SURVIVAL OF SPLENIC TISSUE AFTER SPLENECTOMY.

BY RICHARD T. LEE, M.B., CH.B. SHEFF., M.R.C.S.,
HONORARY SURGEON, MONTAGU HOSPITAL, MEXBOROUGH.

THE following case seems to be sufficiently unusual to be recorded.

Male, aged 29, admitted to the Montagu Hospital, Mexborough, on March 26th, 1923, suffering from abdominal pain, slight vomiting, and constipation.

History.—At the age of 14 he was climbing a wall which fell over on to him, crushing his abdomen. He was admitted to hospital and laparotomy was performed. The spleen was found to be ruptured and was removed. He enjoyed good health subsequently, up to the day previous to examination. He then had sudden abdominal pain and vomiting, and was unable to get his bowels moved. He was able to pass flatus.

Condition on Examination.—Temperature normal, pulse 80 per minute. Tongue coated. Abdomen moved with respiration. Laparotomy scar in middle line above umbilicus. Slight tenderness all over abdomen. Nothing abnormal on palpation or percussion. The vomited matter was bile-stained mucus. An enema was given, which relieved the vomiting and most of the pain. This was repeated on the

morning of the 27th. That evening the pain and vomiting returned; examination of the abdomen showed maximum pain and tenderness over McBurney's point. On the morning of the 28th the pain was worse and the vomiting continued.

Operation.—At 11.30 A.M. on the 28th the abdomen was opened through right rectus below umbilicus. Distended coils of small intestine bulged into the wound. These were studded with small sessile, greenish-black tumours. Exploration revealed a band extending from the old scar to small intestine and a coil of small intestine twisted over it. The band was divided, and the strangulated intestine, being in good condition, was returned to the abdomen. The appendix was normal; the splenic region was not explored. The whole of the peritoneum covering the small intestine and mesentery was found to be covered with small tumours, varying in size from that of a pin's head to about one inch by half an inch. They were either sessile or pedunculated, and appeared only to involve the peritoneal covering of the gut. There were perhaps 200 to 300 tumours. The general appearance suggested splenic tissue;

they appeared to be quite innocent in character. Two were removed for examination and the abdomen closed. Recovery was uneventful.

Microscopical Examination.—One specimen was sent to the Pathology Department, University of Sheffield, for microscopical examination. The following is the report: "This is a small mass of splenic tissue, containing pulp with sinuses and Malpighian bodies. The whole structure is covered by a dense fibrous tissue capsule, and the trabeculae show increased amount of fibrous tissue."

On inquiry from one of the medical men who was present at the first operation, I found that he had no recollection of anything abnormal other than the ruptured viscus. In this case, evidently, living splenic cells had been set free in the peritoneal cavity when the spleen was ruptured, and had become implanted on the peritoneum. The amount of splenic tissue so formed appeared to be quite equal to that in a normal spleen, so that the patient was provided with the equivalent of a new spleen.

Medical Societies.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

METASTATIC GONORRHOEA.

At a general meeting of this Society, held at 11, Chandos-street, W., on May 25th, Dr. DAVID WATSON, the President, in the chair, Sir THOMAS HORDER introduced a discussion on Metastatic Gonorrhoea by reading a paper which appears in full on p. 1304.

Sir WILLIAM WILLCOX said that gonococcal arthritis was of particular interest because it seemed to throw so much light on that much disputed condition known variously as rheumatoid arthritis, osteitis deformans, villous arthritis, &c. In a discussion on gonococcal arthritis should be included the various forms of fibrositis—namely, panniculitis, inflammation of fasciae, muscular rheumatism, inflammation of tendons and bursae, and many forms of perineuritis. These formed a very common complication of gonorrhoea. Some years ago a hunt servant developed gonorrhoea, and saw his local doctor. He had a brachial neuritis and some symptoms of general fibrositis, and was sent to Harrogate. Ultimately the speaker went to see this patient, and found that all the signs of malignant endocarditis, brachial neuritis, and urethritis were present, the urethritis having been contracted six weeks before the onset of the cardiac symptoms. The patient had not wished to give up his work, and so had continued to ride and hunt, the worst thing he could have done, as this massage to the prostatic region gave him a severe auto-inoculation, which proved fatal. Here the rheumatic symptoms were evidently only part of the picture, and not the primary one. As to the bacteriology, joints and tendons frequently failed to reveal the organism, but that did not exclude the possibility of the infection being gonorrhoeal. In gonococcal arthritis, however, the organism had been found in a relatively large proportion of the cases, compared with the other forms of arthritis. Koenig 15 years ago reported that in one-third of his cases of gonorrhoeal arthritis he was able to cultivate that organism. Barr obtained the organism in 19 out of 27 cases, and in 121 cases he found the organism 92 times microscopically and 21 times in culture. In gonococcal arthritis organisms were not necessarily in the joints. Wassermann did some experiments on himself, injecting into himself gonococcal toxins, in which the organism had been destroyed by heat; and he was able to produce symptoms of gonorrhoeal rheumatism.

The question of secondary infections was an interesting one. In many cases of gonorrhoea there was chronic prostatitis and stricture, and a streptococcal infection followed the gonococcal. In some

cases it seemed that the arthritis was due to the secondary infection rather than to the gonococcus, and that the latter might have died out. Latent gonococcal infections might last for years. Sir William Willcox quoted the case of a married man, aged 50, who had a bad gonococcal arthritis of the knee, and admitted indiscretions when about 21 years of age, but in whom there was no history of there having been venereal disease for 25 years. He had keratoderma blenorrhagica and on the soles of his feet were raised-up crusts of horny material, which gave pain on walking. The likelihood of arthritis being due to secondary infection applied specially to women; in them gonorrhoea might be followed by endometritis, salpingitis, and then secondary infection. Two years ago he saw a case in which there was a history of gonorrhoea having been acquired many years before; there had been no symptoms for seven or eight years, but there had been some ovarian trouble, and arthritis, following injury, developed in the left shoulder, and 12 months afterwards in the right ankle, and the right knee. It looked like an ordinary rheumatoid arthritis, but no definite focal infection could be found. A vaccine made from the streptococcus found in the stools gave no benefit. Then pelvic trouble developed, and there was typical salpingitis, for which the tubes were removed. These were examined, but only streptococci were found in them.

Ætiology.—With regard to ætiology, gonococcal arthritis might occur at any stage of the gonorrhoea, and many years might intervene between it and the original infection. Infants might very occasionally get arthritis from gonococcal ophthalmia, but cold, injury, strain, over-exertion might play a part in this as in other forms of arthritis. Gonococcal arthritis was said to be of more frequent occurrence in the male sex. The relationship of true acute rheumatism and rheumatoid arthritis to gonococcal rheumatism was of interest. Sometimes one saw patients who had had acute rheumatism and then got infected with gonorrhoea; in such an event the speaker's experience was that the gonorrhoeal infection was much more severe in its manifestations than usual. The same applied to arthritis. He had lately seen a patient with rheumatoid arthritis which was obviously due to dental infection; there were several apical dental abscesses. Treatment brought about a remarkable recovery. The patient went away for a few months, and when he returned he had a very bad arthritis. Questioning showed he had developed gonorrhoea in the meantime. The worst case of arthritis Sir William Willcox had ever seen was in a patient who had had acute rheumatism in childhood and in early adult life incurred a gonococcal infection; both his hips were completely ankylosed. If certain people had an infection, one particular system of the body might be preferentially involved, and rheumatic subjects acquiring gonorrhoea had a bad time. Gonococcal arthritis was not so common as acute rheumatism in this country, but in some States of America the reverse appeared from statistics to be true.

Pathological Anatomy.—With regard to the pathological anatomy of the condition, four different forms had been described: the hydrops articuli form, the sero-fibrinous, the phlegmonous, and the purulent type, in which pus occurred in the joint. There was a rarefaction of bone with formation of osteophytes; there was also much wasting of muscles, which some said was not merely due to the wasting consequent on the affected joints, but there might be in some cases actual gonococcal myositis. The periosteum might be involved, and a bony thickening of the shaft might be found.

Clinical Course.—As to the clinical course, the general symptoms might be very severe; there might be high pyrexia for weeks or months, also marked anaemia. Pain was a prominent symptom of the acute stage. A feature somewhat distinguishing gonococcal from ordinary acute rheumatism was that sweating was not such a marked accompaniment, and the condition did not flit from joint to joint to the same extent. Neither did it respond to salicylates as did acute rheumatism.

Involvement of Joints.—It had been said that gonorrhoeal arthritis was generally monarticular; the speaker believed that this was wrong, though one joint might be more severely involved than others. In a series of cases at the Johns Hopkins Hospital the average number of joints involved in gonorrhoeal arthritis was six, though perhaps in that series pain in a joint was accounted an indication of involvement; in cases of acute rheumatism the average number of joints affected was three. In order of frequency the following joints were affected in gonorrhoeal arthritis: knee, ankle, wrist, shoulder, elbow, hip, small joints of feet, small joints of hand, temporo-maxillary joint, sterno-clavicular, vertebral, chondro-costal. Spondylitis deformans was often due to a gonorrhoeal infection. Some said that this and painful heels were *always* due to the infection, but Sir William Willcox regarded this statement as incorrect.

In a case of gonococcal arthritis one would look for associated symptoms of gonorrhoea apart from the primary focus: for conjunctivitis, iritis, keratitis, and for skin conditions, such as keratoderma blenorrhagica or warts. In a series of arthritis cases described by Dr. George Graham, due to bacillary dysentery, conjunctivitis occurred in some 70 per cent.; therefore, an association of arthritis and conjunctivitis might mean dysentery. Sir Thomas Horder had already dealt with the subject of clinical diagnosis. Dr. A. Fleming, of St. Mary's Hospital, gave almost identical answers to those of Sir Thomas Horder's colleague in regard to the agglutination test; in Dr. Fleming's opinion the complement-fixation was not a very reliable test either.

Treatment.—Obviously the first thing to do was to attack the cause. The most important indication was rest. He believed many of the severe cases seen would not have reached that stage if complete rest had been insisted on for the patients early in the malady. The general condition must be treated: urotropin and salol were useful as urinary antiseptics; joint pains were much relieved by phenacetin or aspirin. Radiant heat, ionisation, and diathermy were also of use. The most valuable part of the treatment was the specific treatment, and that could be carried out by giving an autogenous vaccine, a small dose if it was advisable in an acute case, the doses being gradually increased at intervals of three or four days. In chronic cases large doses of a mixed vaccine were advisable. Vaccine therapy had been of great value in the treatment of gonorrhoea, but it must not be assumed that the more vaccine one gave the better the result. Sir William Willcox had recently seen a case of gonococcal arthritis of the hip in excruciating pain. The patient's doctor had been giving 6000 millions of gonococcus vaccine every day; when the vaccine was stopped relief immediately followed. After a few days vaccine treatment was recommenced, and pursued with moderation. Sensitised vaccines had been recommended, but the speaker

preferred to use the ordinary vaccines. Bier's treatment had also been used for the condition, a rubber band being placed on the proximal side of the joint for an hour or longer each day. Anti-gonococcal serum had been used for these cases, but the general opinion was that it was not of much value. Some authorities had tried all sorts of vaccines—even typhoid vaccine—for the disease. In late stages, when the arthritis and the acute symptoms had subsided, massage and passive movements to promote mobility of the joints were desirable.

The Factor of General Resistance.

Major A. T. FROST suggested that the medical man was practically helpless in the treatment of gonorrhoea; the patient's own resistance was the final element in the cure of the patient's disease. For example, 15 years ago a young officer in China got infected with gonorrhoea; when first seen by Major Frost six joints were infected, and the heart was involved. The temperature was 103° F. The patient was told to go home to England as quickly as possible, as the sea voyage might raise his resistance. At that date Major Frost felt afraid to use gonococcal vaccines. Three months after arrival in England the joints had cleared, and the heart showed no signs of disease. Major Frost agreed with Sir William Willcox that the best weapon against gonorrhoea was specific treatment by vaccines. He had seen a number of cases in which 1000 million gonococcal organisms were given, followed by a prolonged negative phase. It did not matter how small a dose was given at first; it could easily be increased rapidly until there were local signs that the vaccine was having some effect. In gonorrhoeal rheumatism one had to be careful not to increase the trouble by too large a dose early. In addition to protection by stock vaccines, autogenous vaccines made from the patient's particular strain, he thought, were of higher value. He supposed there was no case of gonorrhoeal rheumatism which had not got prostatitis, forming a natural store of vaccine, the man's own, untouched by heat or antiseptics, where the organism should be in the best state for treating the patient. The regular emptying of the prostatic focus by the finger and massage every five days was the best form of treatment. He wondered whether justice had been done by the bacteriologists who had been referred to in regard to the value of the complement-fixation test in the diagnosis of the nature of joint trouble. In the Military Hospital, Rochester Row, there had been excellent results from the method.

Major E. C. LAMBKIN said he had carried out a certain number of complement-fixation tests for gonorrhoea, and, like most workers, he found that in the acute and subacute stages the results were unsatisfactory. But when he applied to gonorrhoea the technique employed by Dr. A. L. Punch in complement-fixation tests against tubercle better results were obtained. Recently he had had some extraordinarily good results in chronic cases of vesiculitis and obscure joint conditions.

Dr. FOWLER WARD (Ipswich) said that during the later stage of the war he had a number of lorry drivers under his care who had gonorrhoea, and many of them had arthritis of an intractable kind. He concluded that this was because of the prostatic massage produced by riding on the hard lorry seat. He had air-cushions supplied to them, and from that time the relative number of arthritic cases was lower.

Dr. DENNIS VINRACE said that he had found great benefit from auto-vaccines prepared from discharge produced by gentle massage of the prostate. As one test of cure he passed a large metal bougie into the bladder, leaving it in position during the process of massage. Besides vaccines he had found internal treatment with salicylates, cinchona, or iodides effective where sepsis was present.

Dr. F. CARMINOW DOBLE said that at Rochester Row Hospital they had had nearly 5000 cases in four and a half years, of which 400 had joint complications. A complement-fixation test was done for every one, and over 80 per cent. showed a positive reaction.

The prostate or vesicles were affected in these cases, the prostate being boggy or the vesicles enlarged. The average time in hospital was under two months, and there were 12 cases of hyperkeratosis. One case nearly died; he was saved at the last moment by salvarsan in blood serum. With regard to treatment apart from vaccines, he found sulfarsenol in small doses intravenously (0.12, followed in two days by 0.18) acted like a charm. He had never given more than four injections, generally not more than three. Until the prostatic condition had cleared up, the patient could not expect to be fit.

Major G. PETT said Dr. C. A. Robinson, of St. Bartholomew's Hospital, had been treating cases of gonorrhoeal arthritis by diathermy; a certain number of the chronic cases cleared up quickly under this treatment.

Dr. A. C. ROXBURGH confirmed the statement of the last speaker that during the last three years all the cases of gonorrhoeal arthritis at St. Bartholomew's Hospital were sent to the electrical department for diathermy; in some the joints were involved, in some only the prostate. In acute cases the effects were remarkable, the joints lost their pain, and even when the condition had existed for months there seemed to be no means which acted so quickly.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Presentation of Medals.

THE annual general meeting of this Society was held at 11, Chandos-street, London, W., on June 21st. Sir PERCY BASSETT-SMITH was installed in the chair by the retiring President, Sir JAMES CANTLIE. The latter marked the close of his two years of office by presenting a handsome chain and enamelled badge to be worn by all future presidents of the Society in commemoration of his long association with the Society. The medallion bears the emblem of the Society, an anopheles mosquito, with a cinchona leaf, and is suspended from a gold chain comprising links bearing the names of past presidents of the Society.

The new President then made the first award of the Manson medal, founded in memory of the late Sir Patrick Manson, to Surgeon-General Sir DAVID BRUCE, and in doing so referred to the latter's past presidency of the Society and well-known achievements in the cause of humanity by his conquest of Malta fever and work on trypanosomiasis and tetanus. The first award was also made of the Chalmers Memorial Medal to M. EMILE ROUBAUD, of the Pasteur Institute of Paris, in recognition of his able researches in the domain of tropical medicine, and his distinction in helminthology and entomology. This medal was founded by Mrs. Chalmers for an original worker in tropical medicine or hygiene, of any nationality, and under 45 years of age.

Demonstrations.

Colonel CLAYTON LANE briefly described the application of his method of diagnosis of ankylostome infestation by the use of the ordinary centrifuge with buckets adapted to tubes measuring $\frac{1}{2}$ in. by $4\frac{1}{2}$ in. and containing a suspension of 1 c.cm. of stool in 18 c.cm. of concentrated salt solution. Centrifugation resulted in the flotation of all the contained ova to the surface and thus their collection in bulk greatly facilitated detection under the microscope.

Dr. NEVILLE SHARP showed slides exhibiting the differential staining of embryos of *F. bancrofti* and *Loa loa* (Kaduna) by means of immersion in dilute Giemsa's solution for 6 to 12 hours. The sheath of the former was stained a bright red and the nuclei, throughout the length of the embryo, a deep blue, in contrast to the uniform intenser blue of *Microf. loa* with its pallid V-shaped marking.

Dr. FABIAN HIRST read a paper on the

Spread of Plague in the East Indies.

illustrated by lantern slides, maps, and microscopical preparations of *Xenopsylla cheopis* and *Astia*, to show their destructive features and the presence of plague bacillus in the stomach of the former. The irregular distribution of the disease, as indicated by the plague map of India, and its main prevalence in the north and west, was partly dependent on conditions of humidity and lower temperature favourable to the survival of the rat flea most concerned in the spread of plague—viz., *X. cheopis*. The transport and storage of grain were also important factors by the food attraction offered to rats infested by *cheopis*—for plague was most rife where grain was grown and along the routes of grain traffic. Rothschild's differentiation of *X. cheopis* from *X. brasiliensis* and *X. astia* and the work of Martin and Bacot on the bionomics of the three types had rendered possible some explanation of the irregular distribution of plague in India, for this was found to coincide with the geographical distribution of the differentiated species of fleas. Reference was also made to the results of experimental infection of the rat-flea with plague-infected blood, which had shown that the mass of growth of plague bacilli developing in the flea's stomach led to "blocking" of the proventriculus and consequent starvation of the insect. *X. astia*, the species of flea infecting the rats of Madras, which district is relatively immune to plague, was readily susceptible to the effects of this obstruction, dying within 24 hours, whereas *X. cheopis*, when "blocked," made repeated attempts to go on sucking and was able to survive for several days or longer. Hence, *X. astia* was a less formidable vector than *X. cheopis*—the latter species, moreover, was incapable of thriving in the hot climate of Madras. Dr. Hirst drew attention to the fact that the Madras people subsisted largely on rice grown in the *astia* zone of the Presidency and were not dependent on imported grain. In Colombo, on the other hand, the shorter duration of the hot season enabled *cheopis* to survive and propagate in the cooler months. Its discovery on infected rats coincided with the outbreak of plague in Colombo in 1914, whereas previously *astia* only had been found among a large number of examined fleas. In Dr. Hirst's opinion, however, species distribution was probably not a factor of great importance in those parts of India where climatic conditions were specially favourable to the spread of plague by fleas. The prevalence of *astia* was a kind of meteorological indication that the climatic conditions were unfavourable to plague. The appearance of *cheopis* on rats, in localities where it was not indigenous, was to be regarded as a danger-signal. But by taking into account its distribution, and concentrating on the danger spots, considerable saving of effort in the prevention of the spread of plague might be effected. Dr. Hirst advocated the importance of paying attention to the destruction of the insect carrier in all its stages of development, no less than to measures against the rat itself, especially in the rat-proofing of grain stores and the more extended use of the cyanide process for disinfection of grain. He concluded by urging the need for further research into the habits and bionomics of rat-fleas and their reaction to plague infection.

Discussion.

The PRESIDENT said that in view of the important part played by entomological differences of the various species of rat-flea in influencing the distribution of plague, the proper protection of grain stores became a necessity.

Major W. A. JUSTICE, from his experience of plague in the Madras Presidency, laid emphasis on the main risk of infection to which Madras was exposed, coming by sea to the docks and not by rail. Communication by rail from the infected areas in the west was broken

in the transit from broad to narrow-gauge system, allowing of the escape of rats when the grain sacks were transferred from one railway system to the other. The time of harvest he regarded as having some influence on the outbreak of plague; in Calcutta district harvest at Christmas-time was followed by plague in February.

Colonel J. D. GRAHAM mentioned the difficulties attending the grain traffic in Mesopotamia associated with plague at Basra and Baghdad which called for special organisation and measures of disinfection on the river banks by the HCN process, particularly in dealing with grain coming from India.

Dr. HIRST, in his reply, emphasised the fact that in order to obtain reliable results as to the relationship of *X. astia* and *cheopis* respectively to the incidence of plague, it was necessary that the collection of rats for observation of their fleas should be made in cool weather when plague was prevalent.

MEDICO-LEGAL SOCIETY.

THE annual general meeting of this Society was held at 11, Chandos-street, London, W., on June 19th, Lord Justice ATKIN, the President, being in the chair. The President and officers were reappointed for the ensuing year.

Dr. A. S. WOODWARD read a paper entitled

SOME ATTEMPTS TO DEFRAUD LIFE ASSURANCE COMPANIES.

He said that prior to the passing of the Gambling Act in 1774 life assurance business was almost entirely of a speculative or gambling nature. In a book on this subject by John Francis, published in 1852, the prevalence of this form of gambling was vividly described. Walpole's life, for example, was insured by large numbers of people who had no interest in him whenever he came prominently in the public eye; when he became unpopular the premium required rose accordingly, and when he was threatened with impeachment the premium rose higher still. In fact, the percentage figure at which his life could be insured, which was publicly quoted in the papers, formed a fair index of his popularity. Again, after the '45 rebellion the lives of the Pretender and of members of his following captured and at large were insured by large numbers of persons who were naturally aggrieved when any of his following escaped capture or the death penalty. Even the grey hairs of Lord Lovat did not protect him from being the subject of this shocking form of gambling. And what must have been the feelings and effect on the health of a distinguished invalid when he read in the papers, alongside the bulletin of his medical attendant, that his life could only be insured by paying a premium of 90 per cent. This form of gambling was put down by the Act of 1774, which provided that insurance on the life of a third party could only legally be contracted when the person insuring had an interest in the life assured and that the capital sum payable was limited to the amount of such interest.

Frauds in more modern times were attempted by many means. Impersonation, or a mythical assurance, formed the basis of many attempted frauds. The three Bond brothers, of South Carolina, had employed this method with great success. The first brother, an insurance agent, insured the life of a mythical person with an assurance company; the second brother, a medical man, completed the medical forms and certified death at the appropriate moment. It was the business of the third brother to find a dead body, which then took the place of the mythical insured and was buried under his name. The whole business was staged effectively with an anxious female who was the wife of the insured and was run on very economical lines; one corpse was said to have done duty on five occasions. The Bond family was said to have made \$100,000 out of this business before the fraud was discovered. Forgery of the death certificate while the assured was

still alive was sometimes employed as a means of defrauding assurance societies, and "feigned death" was another. The latter form was employed in 1730 by a man associated with a woman who was able to fall voluntarily into a cataleptic state. This couple travelled from place to place; the woman was insured and apparently died; an empty coffin was buried, the man collected the sum payable and disappeared.

Medical misrepresentation might take the form of persons on the verge of death being certified as well for the purpose of effecting insurance. Mysterious disappearances were not uncommon during the late war; it is possible that some of them were intentional frauds upon insurance companies. An historical attempted fraud of this kind occurred in the case of Clement. When driving home one dark night followed by a friend (each in his own vehicle) Clement drove off the road where it ran alongside a river. The friend heard cries and found a dead horse and a broken vehicle but no sign of Clement, who was consequently presumed drowned. It was, however, discovered that the horse had been killed by a blow between the eyes and that footprints resembling Clement's led away from the river. The company was therefore able to contest the claim successfully. Suicide as a means of defrauding life assurance companies was not common nowadays as there was a clause in the policy which protected the company.

The Protection of Insurance Companies.

Insurance companies were protected in two ways, by the Act of 1774 (Geo. III.) already referred to, and by a further legal ruling that a man cannot insure "against the consequences of his own illegal act." In the case of life insurance the latter applies to legal homicide as well as to murder and suicide. Thus in the case of Fauntleroy, executed for felony after paying between 15 and 20 annual premiums, the company refused to pay the capital sum for which he was insured, and this refusal was upheld in the courts. In such cases, however, it lies with the company to prove "illegality." Another case of the kind occurred in the famous Maybrick case. Mrs. Maybrick was found guilty of the murder of her husband (who was insured for £2000) and sentenced to death, the sentence being later commuted to imprisonment for life. As payment for the expenses of her defence Mrs. Maybrick made over to her solicitors her interest in her husband's life assurance, but the policy was declared void. In the case of Monson, at whose trial on the charge of murdering the minor Ham-brough a verdict of "not proven" was brought in, the policy on the life of the victim was invalidated only on account of frauds in the answers to questions in the proposal form. Frauds upon life assurance companies might occur (1) in making the contract, (2) during the currency of the contract, and (3) in making the claim. The company obtained an idea of the physical risk by various means, so that the risk of fraud by one individual was reduced to a minimum. But the insuring office still stood a poor chance against a conspiracy by a group of individuals. "Breach of warranty," "non-disclosure" of important facts, and "false declaration" invalidated the policy. In 1828 a policy on the life of the Duke of Saxe Gotha was voided under curious circumstances involving "non-disclosure." The court physician answered all the questions on the proposal form; it was not suggested that any of the answers were inaccurate or misleading, but the physician did not state the facts of loss of speech and impaired mental faculties. As regards "false declaration" many cases could be quoted chiefly with regard to the answer to the question on temperance. Proposers often did not seem to be aware that in saying they were temperate they were warranting a fact and not merely expressing an opinion. Cases were on record where a man had said he was temperate, although at the time he was consuming 30 to 40 drinks a day and was actually on the verge of delirium tremens. Most companies now required an examination of the urine

which, in the case of male proposers, was to be passed in the presence of the physician. Proposers who knew they were suffering from albuminuria sometimes attempted to substitute another urine, but this attempt at fraud would be at once discovered as such urine was cold, unless precautions were taken to keep it warm. In one case of this latter kind the physician was astonished to find in the urine of a male proposer the large squamous epithelial cells characteristic of the vagina! The stated age of the proposer could nowadays be easily confirmed except in the case of persons born in Ireland, where before 1862 there was no regular registration of births.

Substitution was prevented by making the proposer sign the form in the presence of the medical examiner, although during the war certain aliens in the East End of London with obvious diseases did a thriving trade as substitutes for others called up for military service. After the risk had been accepted the proposer might increase the risk by going abroad to unhealthy countries or taking up a hazardous occupation, unless these added risks were expressly prohibited by the terms of the policy. Fraud in the certification of death was occasionally attempted, usually by representing to the medical attendant that the insured, who when last seen was ill, had died, and thus obtaining a certificate when, in fact, the assured was still alive. The time of death was occasionally of great importance in substantiating the claim or modifying the amount. Since the passing of the Friendly Societies Act in 1896 made it illegal to insure infants under 1 year for more than £6, and under 10 years for more than £10, the frauds of baby farmers had come to an end, and there was no obvious difference between the mortalities of insured and of non-insured infants.

Suicide was a legal felony and as such voided a life assurance policy, although in many cases the company was called upon to pay owing to a verdict of accident by a coroner's jury. In proof of this the Registrar-General's returns for a recent year were quoted. Thus while 375 fatal cases of poisoning were suicidal, 136 cases were found to be accidental, as were also 91 of 452 fatal cases of coal-gas poisoning, and 509 out of 669 fatal railway accidents.

The Protection of the Proposer.

The PRESIDENT remarked that life assurance companies were generally well protected by the formidable list of questions which the proposer had to answer before his life would be accepted for assurance. Indeed, it was rather the proposer who needed protection, and he suggested that in many cases the proposer would be well advised only to fill in the forms with the collaboration of his own medical and legal advisers. The worst offender in the history of frauds upon insurance societies was the infamous Dr. Palmer, who committed several murders, his victims including a brother and even, it was suspected, his mother. Monson escaped under a legal point at his trial. Hambrough as a minor could not legally make over the benefit of his life assurance to Mrs. Monson, and it was thought that Monson should have known this and realised that it could not profit him to murder Hambrough while the latter remained a minor. Frauds in modern times were almost confined to industrial societies, and in these cases the agent was often to blame for misrepresentation to the proposer. The agent was often aware of circumstances which would void the policy, but reassured the proposer in order to induce him to insure.

Mr. G. C. GARDINER referred to the unsatisfactory state of affairs which arose in connexion with the Workmen's Compensation Act; many cases of death from natural causes were alleged to be due to some accident long before death and in no way connected with it. Insurance companies would only be adequately protected when coroners obtained the services of an independent pathologist to perform post-mortem examinations, a practice which was

now increasingly common though not yet universal. The medical attendant of the deceased, practising in an industrial area, should not be called upon to perform the post-mortem examination, as it was difficult for him to form an unbiased judgment when he knew that a finding in favour of the insurance company might seriously prejudice his practice.

Dr. ROLAND BURROWS quoted the case of the aviator Hall, who was shot and killed by a woman named Baxter, to whom he had left his entire estate, including his life assurance. Baxter was, however, excluded from benefit by the legal ruling already quoted. A very pathetic case of suicide in an attempt to defraud insurance companies was that of a boy, aged 13 or 14, the son of a woman in very poor circumstances, who drowned himself at Southend after collecting and filling in the forms on all the weekly journals which offered life insurance to purchasers. This act of self-sacrifice was, of course, useless for the purpose for which it was intended, to relieve his mother financially. In his opinion it was the assured rather than the company which needed protection, as the company took every possible precaution. A High Court judgment against a company generally led to the addition of another question to the formidable list which a proposer had to answer.

Dr. A. S. MORLEY agreed with Mr. Gardiner as regards the propriety of coroners obtaining the services of an independent pathologist, and added that in the country coroners not infrequently found a verdict without any post-mortem examination. Dr. Morley gave instances of two unsuccessful attempts to defraud insurance companies. In the first of these a man who held an accident assurance policy converted the policy so as to cover total blindness. Six months later he claimed the benefit, £1000, for total blindness. The insurance company, however, discovered that he had been seen a few weeks before changing the policy by the late Sir V. Horsley and Dr. Beever, who diagnosed a pituitary tumour. It transpired that the assured's brother was an oculist who, knowing that blindness was an inevitable consequence of the tumour, had advised the change of policy. The policy was voided by "non-disclosure," but the company generously returned the premiums, feeling that blindness in itself was sufficient punishment. The second instance was that of a medical student in very poor circumstances who insured his life and then took to his bed; he called in a doctor, who found that he had albuminuria. The student became apparently very ill, and himself produced oedema of the legs by tying bandages around them before the doctor's visits. Finally he sent word to the doctor that he had died, and attempted thus to obtain a death certificate, which fortunately was withheld!

Dr. MORGAN narrated his personal experience with a life assurance society. As an officer of this society he was entitled to assurance without medical examination at a 15 per cent. reduction of premium. The list of questions he had to answer in the proposal form, however, compelled him to disclose the fact that he had been treated for some months at a sanatorium for supposed tuberculosis at the apex of the left lung. The lesion, whose existence even at that time was doubtful, had since given him no trouble and had in no way interfered with his health and ability to work. In spite of this the company required an examination by their principal medical officer, who "loaded" him, although quite unable to detect which apex had been suspected. Dr. Morgan's complaint was that, having been induced to apply for insurance under a misapprehension, he would have to disclose that he had been "loaded" should he now apply for life assurance to another company.

Dr. MONEY could not understand why the ordinary principle of "caveat emptor" should not apply to life assurance. The company ought to be satisfied with the results of the medical examination without asking the proposer to make disclosures which he might be tempted to conceal.

Dr. ATKINSON and Dr. H. BECKETT-OVERY also spoke, and Dr. WOODWARK replied briefly.

Reviews and Notices of Books.

DERMATOLOGY.

Entretiens dermatologiques. Série nouvelle. Premier volume. By R. SABOURAUD. Paris: Masson et Cie. 1922. Pp 334. Fr.11.

THOSE who are already acquainted with the work and writings of Dr. Sabouraud will not, perhaps, find much that is new to them in this volume. It consists of a series of clinical lectures, and may be divided into three parts, the first dealing with diseases of the scalp, the second with the diagnosis, ætiology, and treatment of a number of common dermatoses, and the third with acquired and congenital syphilis. No one certainly has done more to elucidate the ætiology of diseases of the skin than Dr. Sabouraud, and we owe, perhaps, more to him than to any other dermatologist alive or dead; much of his work needs revision, some of his conclusions are perhaps wrong, but most of his writings are based on acute clinical observation and the results of years of patient laboratory research, and they are already classical. In the opening chapter he recapitulates his views on the interrelation between the development and the diseases of the hair and the evolution of the sexual glands. It must be admitted that his theories, as well as his facts, are open to dispute. The former, which are very ingenious and probably in great part true, need not be argued, but it is misleading to say that "never after puberty can the scalp of the adult nor even of the adolescent contract ringworm," since several authentic cases of ringworm of the scalp acquired in adult life have been published. Again he states that pityriasis capitis—i.e., infection of the scalp with the bottle-bacillus—begins at early puberty, whereas it is frequently seen in infants and young children.

There is much common sense and practical advice contained in the chapters on the hygiene of the scalp in infancy and adolescence, and on trichoclasia, trichorrhexis nodosa, and trichoptilosis, and we commend them to the notice of hairdressers who pose as "hair specialists," since they will find therein exposed the fallacy of many of their pet theories. Apart from a rare idiopathic trichorrhexis nodosa of the moustache and of an equally rare form of trichoclasia, there is no doubt that Dr. Sabouraud is right in attributing these conditions to the mechanical effect of shampooing with strong alkaline soaps, shampoo powders, or ammonia, and to the use of hair dyes and curling-tongs. The popular process of permanent waving is justly condemned for the same reason. The use of a dusting powder containing sulphur and of a solution of sulphur in carbon bisulphide for the treatment of seborrhœa oleosa is described in detail. The powder is a convenient vehicle for sulphur, and for women is preferable to lotions and pomades. The carbon bisulphide solution is doubtless the most active preparation of sulphur we possess, and, in spite of its disadvantages, its employment according to the technique advised is the method of choice in severe cases of seborrhœa of the scalp and face in both sexes. Its smell is, of course, abominable, and its application is followed by a burning sensation which is distinctly painful, but the smell does not cling to the hair, and the pain lasts but a few minutes. Its advantages certainly outweigh its objectionable qualities, and we can testify to its value in obstinate cases of progressive seborrhœic alopecia in men.

English dermatologists will read with interest the chapter on the question of the seborrhœides. Dr. Sabouraud insists quite rightly that we must in the first place distinguish between pityriasis simplex, which is almost certainly due to infection with the bottle-bacillus, and seborrhœa, by which term is meant hypersecretion of sebum. The rôle played by the micro-bacillus in the latter state is still a matter of dispute, but in any case there is much to be said for the view that on the scalp pityriasis prepares the way for seborrhœa, whereas on the glabrous skin seborrhœa prepares the way for pityriasis. In his

account of streptococcal infections of the epidermis Dr. Sabouraud includes intertrigo, and for him true intertrigo is always streptococcal. For its treatment he advises painting with tincture of iodine diluted with ten parts of spirit, followed by the application of a zinc cream and dusting powder.

Two chapters are devoted to infection of the skin with the epidermophyton, particularly as regards its localisation on the hands and feet (eczematoid ringworm of the extremities). It is astonishing that no reference is made to the classical work of Dr. Whitfield on this subject. In 1892 Djellaludin Mouktar described ringworm of the palms and soles, but, according to Sabouraud, the infecting fungi in his cases were trichophytons, not the epidermophyton. In 1908 Dr. Whitfield pointed out that many so-called cases of intertriginous eczema of the toes were really due to ringworm infection. Two years later Sabouraud, presumably unaware of this discovery, published an article on the same subject, and demonstrated that the fungus was the epidermophyton. In 1911 the question was fully discussed at a meeting of the Dermatological Society of London, the openers of the discussion being Dr. Whitfield and Dr. Sabouraud. Yet the latter does not even mention Dr. Whitfield's name in this connexion, although reference is made to the discussion above mentioned; moreover, he refers to the benzoic acid ointment, which is known all over the world as "Whitfield's ointment," as having been "recently described by Pollitzer"!

Among the various other interesting subjects dealt with in the remaining chapters of this book, we may mention the use of baths containing an emulsion of oil of cade and chrysarobin in extensive cases of psoriasis as an alternative to the application of these substances in ointments, and the method of treatment, elaborated by Danysz, with injections of a vaccine prepared from faecal organisms. While admitting that the Danysz treatment is sometimes of no value in psoriasis, Dr. Sabouraud has seen good results from it in several cases. Sutton, in America, uses an autogenous *B. coli* vaccine as an adjuvant to local treatment with chrysarobin, and claims that he obtains more rapid and permanent results than with local measures alone. There is little doubt that the Danysz vaccine acts merely as a non-specific protein, but it is also often of undoubted value, if employed judiciously, in conditions other than psoriasis. A chapter on the treatment of furunculosis with staphylococcal vaccine is of peculiar interest to English dermatologists. A rapid method of preparing autogenous vaccine from cultures grown on a special medium devised by Noiré is described, and Dr. Sabouraud advises intramuscular injections twice a week. He claims brilliant results in furunculosis, but "when the staphylococcal infection is more superficial than in a boil, for example, in folliculitis, sycosis, and pyoderma, antistaphylococcal vaccination is without effect." The whole chapter illustrates how little vaccine therapy is understood in France.

Dr. Sabouraud closes his book with a section of ten chapters on syphilis; of these the most instructive are those dealing with hereditary disease and its clinical manifestations.

ENLARGEMENT OF THE PROSTATE.

Second edition. By JOHN B. DEEVER, M.D., LL.D., Sc.D., F.A.C.S.; Professor of Surgery, University of Pennsylvania. Assisted by LEON HERMAN, B.S., M.D., Assistant Surgeon to the Pennsylvania Hospital; Urologist to the Methodist Episcopal Hospital. Philadelphia: P. Blakiston's Son and Co.; London: John Bale, Sons and Danielsson, Ltd. 1923. Pp. 358. \$7.

THIS is a new edition of a well-known book written with the thoroughness characteristic of the author's other works. There is a systematic review of the history, anatomy, pathology, and ætiology of the disease, followed by an account of the clinical aspect which bears the impress of personal experience. Particularly useful are the author's remarks on the selection of cases for one and two stage operations. He

lays great stress upon the clinical examination of the condition of the heart and the blood. He uses the indigo-carmin test as frequently as the phenol-sulphonaphthalein test. Of this latter he insists that a low output of the dye, if unassociated with increase of the percentage of urea in the blood does not signify that removal of the prostate would be dangerous from the point of view of kidney failure. He considers a persistent low specific gravity of the urine as important as a low phenolphthalein excretion.

The author favours greatly the suprapubic operation and scarcely does justice to the real merits of perineal enucleation. Under certain circumstances, he advocates a partial operation. For median bar and bladder neck obstruction, he recommends open excision by the suprapubic route. There are some omissions which if remedied would make the monograph more useful. They are a consideration of the urea-concentration test of kidney function, the management of carcinoma of the prostate, and of those cases where a large diverticulum is associated with prostatic obstruction. This last serious complication is mentioned but is dismissed in a few lines.

THE PROBLEM OF POPULATION.

By HAROLD COX. London: Jonathan Cape. 1923. Pp. 198. 6s.

THIS volume deals with a thorny subject in a lucid manner, and those who hold differing views should consult it as an excellent exposition of the case for birth control. In successive chapters are discussed the arithmetic of the problem and its economics; there follow chapters on war and population, on social progress, on racial improvement, and on the ethics of birth control. In each of these chapters there is much debatable matter, and it is not surprising that acutely divergent views are being taken as to wise lines of action. The imperialist, desirous that the British Empire shall be peopled by those who will carry on the relatively high ideals of life of the Anglo-Saxon people, naturally deprecates the sterilisation of the sources of replenishment of Greater Britain; the economist, impressed with the close relationship between war and pressure of population, and between this and poverty, and having regard to the present unfavourably differential character of the reduction in the birth-rate is liable to desire ardently the widest knowledge of methods of contraception. In France also there is an increasing endorsement of Renan's striking words, referring to its declining birth-rate: "*La France se meurt; ne troublez pas son agonie.*"

Mr. Cox's somewhat crude statistics as to the relation between high birth-rate and high death-rate will need to be checked by the data now available in the Fertility Report of the Registrar-General. Nor are we completely convinced by the statistics as to the relation between excessive infant mortality and high birth-rate. The association is common, but not essential, as shown, for instance, by the remarkable experience of rural Ireland, with an extremely low rate of infant mortality and a standardised birth-rate which is perhaps the highest in Europe. Nor are we impressed with the picture of the evils of overcrowding in one increasingly urban population as a reason for birth control. It is not unlikely that the acme of this centripetal drive to towns has been reached; with the advent of gas engines and electricity, centrifugal influences are beginning to tell on our population. Meanwhile, the triumphs of social and sanitary progress are seen in the steadily increasing fall of the urban death-rate towards the level of that of rural districts. Mr. Cox quotes Dr. Brend's views as to the constant relation between dirtiness of air and high infant mortality. The facts are against any such relationship on a considerable scale. The problem of emigration has a close bearing on this question, and perhaps Mr. Cox underrates the effect of large-scale migration to Greater Britain on the prosperity of industrial England.

The teaching of the book on war is summed up in the conclusion that "the different races of the world must either agree to restrain their powers of increase, or must continue to prepare to fight one another," a statement which gives much food for thought. The same remark would apply to the sweeping statement that the enormous waste of infant life is the direct consequence of the reckless production of children. There was a vast saving of infant life before the birth-rate in this country declined, the continuing on a larger scale to the present time with a declining birth-rate. The last chapter on the ethics of birth control contains a very complete statement from the author's standpoint of the moral side of this problem; it deserves careful reading by those who are opposed to voluntary birth control in any circumstances.

LABORATORY MANUAL OF BIOLOGICAL CHEMISTRY.

Third edition. By OTTO FOLIN, Hamilton Kuhn Professor of Biological Chemistry in Harvard Medical School. London and New York: Appleton and Co. 1922. Pp. 300. 12s. 6d.

THIS excellent work, as might be expected, does not deal with general biochemistry, but more especially with such parts of it as bear directly on medicine and physiology. As a technician, Prof. Folin has no peer in any continent, and his quantitative methods, a joy to hand and eye, are nearly all described in the present volume, which will have a good European market on that account. New methods are described for the estimation of phosphates, sulphates, total base, sugar, and amino-acids in urine, and for chlorides and amino-acids in blood. Important improvements are also given in the methods for lipoids, uric acid, and sugar in blood. The sections devoted to the use of indicators are excellent, and have the advantage of not demanding a large number of elaborate solutions. The edition is a great improvement on the last one.

PHYSICAL CHEMISTRY.

Praktikum der Physikalischen Chemie. Insbesondere der Kolloidchemie für Mediziner und Biologen. Second edition. Von Dr. med. LEONOR MICHAELIS, A.O. Professor in the University of Berlin. Berlin: Julius Springer. 1922. Pp. 183. 5s.

THE sudden popularity of the long-neglected subject of physical chemistry has led to the exhaustion of the first edition in so short a time that the author could not undertake to re-write this book; the present edition is therefore simply a revised one, he tells us. The revisions are sufficiently extensive, however, to have made his apology rather superfluous. There have been added 23 new pages and eight new figures. We are not in the least surprised at the success of this little book, for, like everything from the pen of this distinguished writer, its contents are clearness itself. Prof. Michaelis has the gift, so rare among German authors and others, of saying exactly what he means in a few well-chosen words, and it is a pleasure to read him. The book contains 82 practical exercises on physical chemistry in its relations to biology and medicine. The chapters deal serially with enzymes, colloids, surface tension, diffusion and osmosis, swelling, viscosity and gelation, electrophoresis and electroendosmosis, adsorption, electromotive force, and the kinetics of reactions. The instructions are so clear, and the explanations so well-treated, that little preliminary knowledge of physical chemistry is needed to enable anyone with a good knowledge of general laboratory technique to go right through the course. The sections devoted to colloids, to the investigation of which the author has devoted so much of his own research, are, of course, excellent, and so are those dealing with the hydrogen-ion technique, of which we believe there is no better account in elementary language extant. In the present edition several new exercises dealing with the use of indicators for the determination of hydrogen-ions are included.

Reports and Analytical Records.

HYPOLOID INFUNDIN.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL BUILDINGS, LONDON, E.C.1.)

THE Hypoloid Infundin-Pituitary Infundibular Extract (new standard) has been added by Messrs. Burroughs and Wellcome to their hypoloid brand products. It is a sterilised solution specially prepared for hypodermic injection and conforming to the standard recommended by the Medical Research Council and the United States Pharmacopœia. The strength is equivalent to a 10 per cent. extract, and the preparation has been found particularly useful in obstetric cases. The phials are supplied for use, under medical direction only, in hermetically sealed containers of 0.5 c.cm., the dose recommended as an ante-partum measure, and of 1 c.cm., being the normal post-partum dose.

LIPOCITHINE.

(MANSON'S [LONDON], LTD., 101, HATTON GARDEN, LONDON, E.C.1.)

This preparation is described as a synthesis of cholesterine and lecithine, and of greater efficiency than these two substances separately. The value of lipoids in therapeutics is well known, if their exhibition is carefully watched, and the manufacturers of lipocithine have obtained satisfactory medical verdicts upon the preparation, which is indicated as a restorative in many conditions of anæmia, asthenia, and prolonged convalescence. The formula is cholesterine 5 gr., cholesterine distearyl-glycerophosphate 5 gr., 100 gr. of pure and sterilised olive oil. The preparation is employed in gluteal injections and is supplied by Messrs. Douetteau, of Paris, through Manson's (London), Ltd. It clearly merits trial by the medical profession.

PHENOQUIN AND NEO-PHENOQUIN.

(SOUTHALL BROS. AND BARCLAY, LTD., BIRMINGHAM.)

These preparations of phenyl cinchoninic acid are described by the proprietors as uric acid eliminants. In its first form the remedy, which was introduced some five years ago, was found to be useful in gout, articular rheumatism, and the various indications of these conditions, while the introduction of lithium in the newer form of the preparation brought about rapidity of action. The drugs are supplied in tablets, and the usual accepted dosage in both cases is from 1 to 5 tablets twice daily—approximately 20 to 60 gr. The tablets should be given after meals, and in some cases 10 gr. of sodium bicarbonate in a tumbler of plain water taken simultaneously has been found useful.

STANDARD LACTOSE.

(THE BRITISH DRUG HOUSES, LTD., GRAHAM-STREET, LONDON, N.1.)

Lactose of a uniformly reliable quality is in regular demand for biological purposes, and a duly tested standard preparation will be welcomed by many workers. "Standard" lactose has been tested with the following organisms in sterile peptone solution: *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, *B. enteritidis* gaertner (no fermentation), and *B. coli* communis, *B. coli* communior, *B. cloacæ* (fermentation with acid and gas). With 1 per cent. of Standard Lactose B.D.H. the reactions of *B. typhosus*, *B. paratyphosus* A and B, and *B. gaertner* are constant after 96 hours' incubation; the reactions of the *B. coli* organisms and *B. cloacæ* are obtained in 12 hours.

ADRENALIN "CIBA"; DIDIAL; DIALACETIN.

(THE CLAYTON ANILINE CO., LTD., 68½, UPPER THAMES-STREET, E.C.4.)

This is a synthetic preparation of adrenalin in which care has been taken that the product should be pure and stable. Neither in crystals nor in solution does any deterioration occur, a fact which is of particular

service to the dentist who does not frequently require to use adrenalin, while adrenalin "Ciba" is considerably cheaper than the natural product.

From the same firm we have received two new preparations or derivatives of Dial, which we have previously noted in THE LANCET as a powerful hypnotic, less toxic than veronal, and producing no unpleasant after-effects. Dial has been used in general practice, and especially among mental patients as a hypnotic, as it restores the sleep habit effectively and allows of gradual reduction of dosage.

Dialacetin is a combination of Dial in association with an analgesic. It has been used by French physicians as a sedative, especially in epilepsy, and its employment has been made the subject of considerable discussion in the French press. This new hypnotic sedative might well be tried in insomnia associated with neuralgic pains.

BOWEN'S OLD INVALID PORT.

(W. H. CHAPLIN AND CO., LTD., 48, MARK-LANE, LONDON, E.C.3.)

This wine, shipped from Oporto, when analysed was found to have the composition:—

	Per cent. by volume.
Alcohol	19.6
Total sugars	7.9
Consisting of—(dextrose	3.25
(levulose	4.65
Sugar-free extractives—	
Glycerol, &c.	1.4
Fixed acid as tartaric	0.36
Volatile acid as acetic	0.05
Mineral matter	0.21
Water	71.1
Preservatives (salicylic acid, sulphites, boric acid) and dye-stuffs absent.	

The evidence afforded by this analysis indicates that it is a true "port," confirmation in this respect being the preponderance of levulose over dextrose. It has a full, agreeable palate and bouquet, and is well matured.

STERILISED SURGICAL DRESSINGS.

(SQUIRE AND SONS, LTD., 413, OXFORD-STREET, W.1.)

We have received from Messrs. Squire and Sons a specimen drum containing sterilised surgical and accouchement dressings. All the dressings have been carefully made in the first instance, and have been sterilised with the fullest precautions. The modern plant installed for this purpose subjects the dressings to moist heat at a temperature of 126° C. for 30 minutes, and the dressings are issued in hermetically sealed containers or drums. The sterilisation chamber is fitted internally with a patent mechanical arrangement, whereby the drums are hermetically sealed inside the chamber while still in a perfectly sterile atmosphere. This ensures an absolutely aseptic condition of the contents from the time of sterilisation until the drums are opened for use. The outfits and dressings comprise everything needed either to complete an outfit or to supply a full one. No stress need be laid upon the obvious importance of being able to obtain with a feeling of perfect security and at any hour of the day and night such an outfit. It should be noted that, as a partial vacuum exists in the drum, at a low temperature further contraction of the rarefied air may lead to indentation in the tin. A series of bacteriological experiments have been made by the Clinical Research Association to test the efficiency of sterilisation. Various cuttings were taken from the contents of one of the drums and inoculated under aseptic precautions into sterile fluid media, when no growth of organisms took place after 48 hours' incubation at 37° C. under aerobic or anaerobic conditions. Further, infected swabs were placed in the centre of one of the drums containing dressings, overalls, &c., and having been submitted to the sterilising process were inoculated into culture-media, when no growth of organisms was obtained during the same time and at the same temperature. But a duplicate set of control swabs gave rich growths of the respective organisms. The sterilising process is thus demonstrated as thoroughly efficient.

THE LANCET.

LONDON: SATURDAY, JUNE 30, 1923.

THE LAW OF CORONERS.

DURING 1922 the Government was understood to be preparing a Bill for consolidating and amending the law of coroners. In August an official spokesman expressed the pious hope that it might be produced before Christmas. The Bill has never appeared, but, so long as proposals for amending the existing law are being actively canvassed, projects for consolidating that law may reasonably be delayed. There are, indeed, many points at which the law relating to coroners invites amendment. There is the profitless duplication of certain proceedings in magistrates' and coroners' courts. The Home Secretary stated a year ago that the Government Bill would deal with this point. He also undertook to consider the extension of the provisions of the City of London Fire Inquests Act of 1888 (as recommended in Dr. WALDO's annual report for the year 1921), and the insertion of a clause making the viewing of the body by a jury optional, subject to the discretion of the coroner to insist upon it. Mention of the jury recalls the fact that at present the war-time provision as to the composition of coroners' juries is being respite by inclusion in the Expiring Laws Act: permanent legislation should not be postponed indefinitely by this hand-to-mouth method. The power to increase the remuneration of coroners which Parliament sanctioned in July, 1921, was another example—though a belated one—of legislation due to the war. If only some scale for remunerating coroners could be satisfactorily determined on a basis which excluded the number of inquests, it would kill the unworthy accusation that coroners multiply inquests for the sake of fees.

Perhaps the most important proposals for amending coroners' law relate to death certification and the disposal of bodies, the object being to lessen the risk of premature burial and to make it more difficult for crime and foul play to escape detection. "It is no fault of the law," reported a Departmental Committee in 1901, "if premature burials do not take place: the present law of death certification offers every facility for the concealment of crime." In this connexion two private Members' Bills are now before the House of Commons, though their progress is slow. The first of these is Dr. SALTER's Deaths Registration and Burials Bill, with its interesting proposals for the registration of still-births in a separate register book, and for the appointment, somewhat on the French model, of "public certifiers of death"—i.e., registered medical practitioners who will have to attend inquests if the coroner finds that no other doctor will be present, and whose duty it will be to give a death certificate when the deceased has not been professionally attended during his last illness. The other Bill is Major MOLLOY's Coroners' Law and Death Certification (Amendment) Bill, supported by Colonel FREMANTLE and Dr. WATTS. This Bill originally proposed (though the clause is not likely to be pressed) that local authorities should appoint "special medical officers" in each coroner's district to view bodies and give a death certificate when no registered medical

practitioner is available for that purpose, and to investigate and report to the coroner upon the cause of death. Of the two Bills Major MOLLOY's seems to stand the better chance of success, especially if it incorporates various suggestions made by the Special Committee on Death Certification of the Federation of Medical and Allied Services—a committee which represented all the interests concerned. The Bill thus modified would reduce the time-limit for notifying death to the registrar (under Section 10 of the 1874 Act) from five days to two. It forbids the disposal or embalming of human remains except under the authority of a certificate or coroner's order, and prohibits the inclusion of more than one body in a grave unless notice is given to the registrar. The main safeguards against foul play are briefly these: no burial without a certificate of registration of death; no certificate of registration of death without a medical certificate; every medical certificate to declare the fact of death and the cause of death on a distinctive form of which the counterfoil will be numbered and recorded so that every form issued can be traced. The registrar's certificate is to be endorsed with various details of the date, place, and mode of disposal of the remains. The resultant records may produce some useful statistics, especially if the effort to standardise the classification of diseases succeeds. Other clauses of the Bill provide that the registrar who is informed of a death but has not received a certificate of the cause of death shall inform the coroner; a dead body is not to be retained in a house longer than seven days unless under authority of a justice or coroner where there is reasonable doubt of death having occurred; within 24 hours of the expiration of that period the occupier must remove the body for disposal or apply to the medical officer of health, whose duty it will be to bury the remains within 24 hours.

On a cursory examination these proposals seem a great improvement upon the old law. As they need not involve either vast expense or an army of new officials, there seems no sufficient reason for suggesting that the new law should be made adoptive or that it should be at first confined experimentally to urban areas.

TUBERCLE ANTIGENS.

WE called attention a fortnight ago to Prof. G. DREYER's lecture at the St. Mary's Institute of Pathology and Research in which he related some striking successes, experimental and clinical, attained by the use of defatted bacterial vaccines. A very favourable impression has been created by the evidence brought forward that in three guinea-pigs infected with tubercle bacilli of human type the course of the disease was stayed by injections of defatted antigen. Guinea-pig proof has long been demanded by the sceptic as the sign from heaven without which he would not believe. We learn that the Medical Research Council are now arranging, in consultation with Prof. DREYER—who by a happy fortuity had just become a member of the Council—for extensive trials at various centres where facilities can be provided, the vaccine being distributed from the Oxford School of Pathology. The results so far communicated to the Research Council have been favourable almost without exception, and although a cautious attitude is enjoined until a longer period has elapsed, nevertheless, in cases of tuberculous disease of the glands and of the skin, it can be said already that the results of this treatment have

surpassed any known to have been attained regularly by other methods. Encouraging results have also been gained in the treatment of septic infections, particularly puerperal fever.

The success of the Dreyer tubercle antigen, if it should prove as serviceable in other hands, will be, like the Toronto work on insulin, the keystone of long and patient search in many lands. From the early work of KOCH onwards the structure and chemical composition of the tubercle bacillus have been the subject of ceaseless investigation, and the information available has already been exploited on therapeutic lines with a certain degree of success. As long ago as 1910, Prof. G. DEYCKE and Prof. HANS MUCH showed that the tubercle bacillus consists of several chemically distinct substances, to each of which they believed the human body reacts in a specific manner. They treated tubercle bacilli with dilute lactic acid and separated two antigens, one soluble in water, the other insoluble. The latter residue can be split into an albumin group, a fatty acid and lipoid group, and a neutral fat and fatty alcohol group. Their partial antigen or partigen system of treatment was based on the assumption that the body reacts to each of these partial antigens with a specific antibody. If the value of the Deycke-Much teachings were to be gauged simply by the volume of the writings on the subject, no one could fail to be impressed, but the criticisms of such authorities as Prof. UHLENHUTH have sown distrust, and the opinions of many clinicians of experience are unfavourable to the Deycke-Much school. Since 1910 there have been many other attempts to rob the tubercle bacillus of its acid-fast coat, and in 1918 a paper was published by DOSTAL and SAHLER¹ whose new vaccine, "tebecin," was said to be obtained from a pure culture of tubercle bacilli grown on glycerine media to which a saponin had been added. In the fifth generation the bacilli were found to have lost their acid-fastness, and it was claimed that they were not only non-pathogenic to experimental animals, but were capable of conferring on guinea-pigs immunity to virulent tubercle bacilli. The results obtained in human tuberculosis with "tebecin" were said to be excellent, and it was claimed that neither a focal nor a general reaction was provoked. Later reports of this vaccine have, on the whole, been favourable.

A more novel method of attacking tuberculosis, set out² by Dr. A.-R. JENTZER, Dr. MARKOVIC, and Dr. RASKIN before the Geneva Medical Society in January last, also centres on the fact that the tubercle bacillus has a waxy, fatty, protective coat. But while other workers have attacked this coat in vitro, the Geneva method is to attack it in vivo. Their thesis is, in brief, that the leucocytes, the lymphocytes in particular, contain ferments capable of destroying the sheath of the tubercle bacillus, and that the more lymphocytes can be stimulated to produce such ferments, the more unhappy will be the lot of the tubercle bacillus in the tissues. Several interesting observations are quoted in support of this thesis. The larva of the caterpillar which invades beehives has a remarkable capacity for digesting wax and is also, incidentally, immune to the tubercle bacillus, an emulsion of which is promptly disposed of by this larva (*Galeria melonella*) on subcutaneous injection. In half an hour the bacilli are absorbed by the larva's phagocytes, and in a few hours they cease to be acid-fast. Dr. JENTZER and his colleagues have worked with a compound of fats, lipoids, and waxes sold by the

Swiss firm of Hausmann as "gamelan." It is given by subcutaneous injection or inunction, and the claim is made that it stimulates the tissues to produce ferments which not only saponify the fatty and waxy substances introduced by parenteral injection, but also the fatty, lipoid, and waxy constituents of the tubercle bacillus. "Gamelan" has been tested on guinea-pigs infected with tubercle bacilli before and after the administration of this remedy, and the experimental evidence thus obtained is, on the whole, encouraging. The clinical evidence is also in its favour, and it is claimed that in about 70 per cent. of the cases of tuberculosis in human beings treated by "gamelan," there was an increase of the number of the lymphocytes. There were also many signs of clinical improvement, and this was achieved without the discomforts of a local or general reaction. The exact composition and mode of manufacture of "gamelan" is not published, and till further confirmation of the claims made on its behalf is forthcoming, it would be well to treat this remedy with the reserve commonly shown by the medical profession towards secret remedies.

It must, however, be obvious that if Prof. DREYER'S discoveries have been to a certain extent anticipated, but kept secret, by persons anxious to exploit them commercially, his own candid publication is in harmony with the tradition which has never been better set forth than in Prof. SODDY'S words:—

"... Let it not be forgotten that science is a communism, neither theoretical nor on paper, but actual and in practice. The results of those who labour in the fields of knowledge for its own sake are published freely and pooled in the general stock for the benefit of all. Common ownership of all its acquisitions is the breath of its life. Secrecy or individualism of any kind would destroy its fertility."

The storehouse of medical knowledge is being notably enriched in these latter days by the spread of this tradition which is bringing about the more complete internationalising of medicine.

THE CAUSE OF DEATH.

THE pathologist who honestly confronts the problems presented to him in the course of his routine work will be the first to acknowledge the limitations of the ordinary post-mortem examination. The gross lesions of such diseases as pneumonia, tuberculosis, nephritis, or cancer are obvious enough to admit of a diagnosis being made from a naked-eye examination, though, it may be noted in passing, the actual immediate cause of death may be far from easy to determine. In many diseases, however, the morbid changes are apparently slight and often quite inadequate to explain the patient's death. A very large proportion of such cases may be made clear by careful histological and bacteriological examinations, and the more attention that is paid to these subsidiary but all-important investigations, the less frequently will the pathologist have to confess himself baffled.

In a highly suggestive paper on unexpected death, which appears in the present issue of THE LANCET, Prof. E. E. GLYNN and Mr. R. C. DUN describe the elucidation of six obscure cases in which a simple post-mortem examination alone would have failed to provide the true explanation of death. Apart from the intrinsic interest of the cases detailed therein, this paper is of value in that it raises general questions of great importance. One of them is the standing of the condition known as status lymphaticus. It is not

¹ Wien. klin. Woch., 1918, No. 14.

² Schweiz. med. Woch., May 3rd and 10th, 1923.

going too far to say that the unwarrantable use of this term, especially in coroners' courts, during the last decade or so has caused such a reaction that man, pathologists refuse to admit the existence of such a condition, at least as a pathological entity. It is certain, at any rate, that a hyperplasia of lymphadenoid tissue exists in a large proportion of perfectly healthy children. An unprejudiced examination of the bodies of children killed, say, in street accidents commonly reveals a more or less advanced state of lymphatism; and unless we are to regard this as an indication that the lymphatic child is less alert than other children, and therefore less able to cope with the exigencies of our modern mechanical traffic, it is difficult to attach any particular significance to it. Another and more important point raised is the trustworthiness of the medical evidence given in the coroner's court. There is no doubt that the authors are correct in questioning its value. All the circumstances militate against an accurate and painstaking examination of many of the difficult and obscure cases which come within the coroner's jurisdiction. And even granted a sympathetic attitude on the part of the jury and the court officials, it must be remembered that the modest fee which the law allows the expert witness can in no way repay him for the labour involved in elaborate investigations, or the time spent in the second attendance at the court which the adjournment of an inquest entails.

Finally, the perusal of this paper makes it difficult for the critical reader to retain much faith in that part of the Registrar-General's reports which deals with the causes of death, for on what are his figures based? If the post-mortem room, unaided by the laboratory, can only provide him with the truth in a certain number of cases, upon what proportion of ordinary death certificates, uncontrolled even by a cursory autopsy, is he justified in placing any reliance at all? It is an interesting mathematical problem, this, with which the statistician has to wrestle.

INTERNATIONAL POST-GRADUATE FELLOWSHIPS.

A FURTHER opportunity for the mental refreshment offered by study of different methods of work is announced. The Rockefeller Foundation of New York, whose generosity and vision seem equally wide, have entrusted the Medical Research Council with a fund to be used in providing Fellowships in medicine in the United States. Fellowships will be awarded by the Council, in accordance with the desire of the Foundation, to graduates who have had some training in research work in the primary sciences of medicine or in clinical medicine or surgery, and are likely to profit by a period of work at a university or other chosen centre in the United States before taking up positions for higher teaching or research in the United Kingdom. It is understood that similar medical Fellowships provided by the Rockefeller Foundation will be awarded by the National Research Council at Washington to American graduates desiring to work for a time at selected centres of research work in this country. A Fellowship will have the value of not less than £315 a year for a single Fellow, or £470 for a married Fellow, payable monthly in advance. Travelling expenses and some other allowances will be made in addition. A Fellowship will be tenable for one year, which will, as a rule, begin in September. Applications for Fellowships tenable for the academic year 1923-24 shall be made not later than July 20th next. Full particulars and forms of application are obtainable from the secretary, Medical Research Council, 15, York Buildings, Adelphi, London, W.C. 2.

Annotations.

"Ne quid nimis."

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE report for 1922 of the Council of the London and Counties Medical Protection Society, presented by Sir John Rose Bradford, President, at the annual meeting on June 20th, showed that the Society's thirtieth year of existence had been attended by progress and success. The number of applications from members asking for advice and assistance was 645, as compared with 465 for the year 1921. In the great majority of cases satisfactory results were obtained without litigation, and the results of cases where litigation occurred were in the main gratifying. The Society's provision for indemnifying members against costs of the other side and damages in unsuccessful cases continued to work smoothly and well. In view of the Society's increasing work and growing membership, a long lease was secured of convenient offices at Victory House, Leicester-square, W.C. 2, with the additional use of a large room for meetings of the Council or of the Society. With a view to encouraging young practitioners to join the Society as soon as they begin practice, the Council decided not to charge an entrance fee to candidates applying for membership of the Society within a year of the date on which their names are entered on the Medical or Dentists Register. After very careful consideration the Council resolved, for the present at all events, not to elect as members any dentists who do not possess a registered degree or diploma. A standing joint committee of the Medical Defence Union and of the London and Counties Medical Protection Society has been elected for the purpose of considering matters affecting both organisations. The report contains the usual array of cases dealt with by the Society to the satisfaction of both parties; in a section devoted to charges of negligence or unskillfulness the following warning paragraph is inserted:—

"The treatment of fractured bones gives rise to many claims for damages every year, and members are strongly advised to insist as early as possible upon an X ray examination in all cases where a fracture or dislocation has been, or may have been, sustained. When this is refused, or omitted, for any reason, a member should provide himself with clear evidence—preferably in writing—to prove that he was not responsible for the neglect or omission."

With reference to libel and slander, members are strongly urged to refer all such difficulties to the Society before dealing with them in any other way. Among replies to questions of medical ethics raised by members, was one informing a doctor that it was quite proper to send out a circular notice to his patients informing them of his change of address, provided every care were taken that only his patients received the notice and that it was limited to the intimation of change of address. Complaints are occasionally received concerning alleged touting for patients—especially panel patients—by collectors employed by the doctors concerned.

"Such touting is probably not often directly authorised by their employers, but when collectors are paid a commission on the receipts there is an obvious inducement to make efforts to extend their employer's practice and consequently an inducement to carry on touting even though the employer is known to disapprove of it."

Members are therefore strongly advised not to make such arrangements. With regard to medical witnesses at coroner's inquests, the report points out that while many coroners are scrupulously just, some coroners, and more coroners' juries, treat medical witnesses and medical evidence in a manner neither considerate nor just; it also points out that "riders" to verdicts of coroner's juries have no legal value, and are often unjustly defamatory opinions expressed in an irregular way under the protection of privilege. Dental members of the Society are stated to apply for

advice and assistance to about the same extent proportionately as medical members; claims for damage on account of alleged negligence and want of skill form one of the largest class of cases. Litigation has frequently been avoided by the Society's advice or mediation.

PITUITARY EXTRACT AND INSULIN.

CUSHING and his collaborators in 1910 found that in cases in which there existed in the organism a hypophyseal deficiency, whether this occurred clinically or was produced experimentally, there was "an acquired high tolerance for sugars, with the resultant accumulation of fat," whilst the blood became hypoglycæmic. Since then many investigations have been made on the effect of infundibular extract on normal blood-sugar. Dr. J. H. Burn records in the *Journal of Physiology* (vol. lvii., No. 5) certain experiments made on unanæsthetised rabbits, samples of blood having been obtained from the ear vein. Determinations of the level of the blood-sugar were in all cases made on 1 c.cm. blood by the method of Shaffer and Hartmann; this method is substantially the same as Maclean's method, recently described in our columns, although the latter as modified requires only 0.2 c.cm. of blood for a determination. It was found that subcutaneous injections of extract of posterior lobe of the pituitary gland, given simultaneously with injections of insulin, diminish or abolish the fall of blood-sugar produced by the latter. The doses of pituitary extract used do not, when given alone, produce a rise of blood-sugar sufficient to explain this inhibition of the action of insulin, as the result of an algebraic sum. The effect is not produced by similar extracts of anterior lobe of pituitary, or of spleen, thyroid, brain, or thymus, nor is it produced by histamine. The property in the case of posterior lobe extract is destroyed by normal alkali in the cold. Pituitary extract removes the symptoms of hypoglycæmic convulsions, causing a rapid elevation of the blood-sugar. The effect of a small dose of insulin is greatly increased by previous intravenous injection of ergotoxin. Confirmation is given of the following points: (a) Pituitary extract inhibits adrenalin hyperglycæmia and glycosuria; (b) ergotoxin abolishes adrenalin hyperglycæmia and glycosuria; (c) insulin greatly reduces the hyperglycæmic action of adrenalin. Experiments are described in which subcutaneous injections of pituitary extract in the normal animal led to a fall of blood-sugar, though as a rule such injections cause a transient rise. Dr. Burn further discusses the difficulty of fitting all of the preceding results into a consistent scheme, a difficulty which he has not at present been able to overcome.

BUSACCA'S REACTION IN TUBERCULOSIS.

THIS reaction, based on the observations of Busacca in Vienna in 1921 that the tuberculous are specially sensitive to normal horse serum, has not hitherto attracted much attention in this country. It may be therefore of interest to note that the subject has been recently taken up by Dr. G. Montemartini¹ of the Institute of Surgical Pathology in the University of Rome, who practised the reaction in 315 cases consisting of the following groups: healthy subjects, 30; anæmic subjects in tuberculous families, 43; pulmonary tuberculosis, 174; tuberculosis of the glands and serous cavities, 39; osseous tuberculosis, 29. He injected intradermally 0.2 to 0.3 c.cm. of normal horse serum into one forearm and simultaneously practised von Pirquet's cuti-reaction on the other, using Koch's old tuberculin diluted to 25 per cent. A larger dose than 0.2-0.3 c.cm. should not be used as it may provoke a traumatic reaction. Of these reactions 57 per cent. of Pirquet and 59 per cent. of Busacca were positive. In normal individuals 6 per cent. were positive, while in the others, including the predisposed cases, the positive results varied from 47 per cent. to 74 per cent., the lower figure being that

of chronic and the higher of early and rapid tuberculosis. The total positive reactions including predisposed individuals and those suffering from various forms of tuberculosis were 65 per cent. According to ages, 25 per cent. of positive results were obtained in those under 4 years of age, and as many as 76 per cent. in those between 50 and 80. In the few breast-fed infants the reaction was invariably negative. The high positive percentage in the old was attributable to the fact that the patients were mostly old tuberculous cases collected from sanatoriums and had calcified lesions. These observations of Dr. Montemartini tend to show that an organism which has become allergic owing to a tuberculous infection reacts also to non-specific stimuli, and the greater the allergy the greater is the susceptibility to other stimuli. X rays and solar radiation also are non-specific stimuli which act like the proteins. The specificity of the tuberculin reaction is therefore relative and certainly inferior to that of true antigen reactions. The larger number of positive results being met with in tuberculosis of rapid course and not long duration, while a negative result was usually obtained in those of two or three years' duration, suggests that the reaction has a prognostic as well as a diagnostic significance. The reaction described by Busacca is non-specific, but has the same significance as the specific reaction of Pirquet, denoting a tuberculous infection more or less intense, latent, or circumscribed.

COMFORTS IN HOSPITAL.

IN view of recent proposals¹ for the use under certain conditions of beds in general hospitals by the middle classes, the regulations governing the introduction of supplementary food into the wards of various hospitals become of especial interest. It is useless to disguise the fact that the delicacies with which the middle-class patient is tempted to eat during convalescence can hardly be supplied in general hospitals. A questionnaire was sent recently to 24 important general hospitals, selected in approximately equal numbers from those in London on the one hand, and those in large towns throughout the country on the other. The secretaries were asked what regulations for the introduction of (1) eggs, (2) butter, (3) fruit, (4) sweets or chocolates, by patients' friends were applied irrespective of whether an individual patient might or might not be allowed to have one or other of these foodstuffs on medical grounds. In addition, it was asked what was the rule with respect to questions on the telephone about the welfare of patients, and what were the visiting hours for the friends of patients other than those on the danger list. Any provision whereby a patient considered to be dying might be allowed luxuries in the way of foodstuffs not usually permitted was inquired into, and finally it was asked whether these regulations applied to any private paying wards that might exist in the hospital. Eighteen replies have been received and present features of interest. Sixteen hospitals—that is, all but two of those who have replied—allow fruit as well as butter and eggs to be introduced, mostly at the discretion of the sister of the ward, in some cases at the discretion of the medical officer in charge of the ward. The remaining two allow butter and eggs to be introduced, under these conditions, but, somewhat inexplicably, have a rigid rule forbidding fruit. Consistently enough, these hospitals also veto the introduction of sweets, but of the 16 previously mentioned 11 allow sweets also. In certain hospitals it is stated that any foodstuffs approved by the medical officer of the ward may be imported. It would be interesting to learn whether this permission includes uncooked choice food, such as chickens or soles, or even cold dishes prepared with affectionate care at the patient's home. Six hospitals allow inquiries to be made by telephone; one arranges for each ward to be connected to the main telephone

¹ La Riforma Medica, xxxix., May 7th, 1923.

¹ Vide "British Hospitals Association: Some Administrative Problems," THE LANCET, June 9th, 1923, p. 1197.

service in order that such facilities may be easy to provide; another has two officers whose whole time is given up to answering inquiries. Others again allow inquiries over the telephone in cases of urgency only, and six announce that they discourage the use of the telephone for inquiries, though they do not state, as do three of the hospitals, that no replies will be given under any circumstances. In most cases there are no private wards in the hospitals interrogated, but in one only of those that have private wards are there any different regulations for these wards, the difference consisting in the extension of visiting hours from twice a week to every afternoon. Visiting hours are, for the most part, one or two hours twice or thrice weekly.

It is obvious that each hospital has its own problems, and that its geographical position and the general circumstances of the majority of its patients must make a difference to its regulations. We would not presume to offer criticism or advice as to the details which have so courteously been supplied to us except on one point only. It is a time-honoured custom for friends of the sick to supply fruit for their delectation, and in many cases grapes or oranges are longed for by patients. Since it has been found in 16 of the 18 hospitals which have replied to our questionnaire that the general permission to introduce fruit under the supervision of the medical officer or sister in charge of the ward leads to no ill-results, we would plead, not only on behalf of the potential middle-class patient, but of the hospital-class patient with generous friends, that a modification of the rigid rule to exclude fruit under all circumstances whatever might lead to considerable alleviation of suffering, and would doubtless earn the gratitude of those patients who have memories of other hospitals where this boon is accorded. In this case, indeed, the little more, how much it is, the little less, what worlds away.

THE EARLY DIAGNOSIS OF PLUMBISM.

In October, 1919, plumbism was included in France among the liabilities of employers and workmen's compensation insurance agencies, and this step has added to the importance attached to this vocational risk. In a previous publication Dr. A. Feil and Dr. R. Heim de Balsac¹ pointed out that the most early and delicate laboratory tests for plumbism were the demonstration of lead in the urine and of basophil granules in the red corpuscles. In a later paper² they admit that the demonstration of lead in the urine is a tedious and difficult task, and that though it is comparatively easy to find the basophil granules of lead poisoning in red corpuscles, laboratory apparatus is needed, and this is not always to hand. In this country, it may be remarked, these granules are not considered diagnostic of plumbism, as they may occur in any trouble which causes anaemia by destroying red cells. The French authors have, therefore, attempted to discover early pathognomonic clinical signs of plumbism, and with this object they have carried out wholesale examinations of employees in factories in which lead was used. In one factory, turning out accumulators, 96 apparently healthy employees were examined, and in another group of cases examined there were 83 workers employed in motor-car factories turning out painted coach work. Among the first group of 96 employees there were 88 who had worked with lead for less than five years, and only eight had been exposed to lead poisoning for a longer period. In the second group of 83 employees there were as many as 53 who had worked with lead for more than five years. Although these workers were apparently healthy, the lead line was found in 65 per cent., being well marked in 25 per cent. and slight in 40 per cent. A history of lead colic was obtained in 5 to 6 per cent., and only in 3 per cent. was a history of parotitis obtained. Other symptoms and signs such as myalgia, arthralgia, high arterial pressure, and a taste of lead

did not occur with sufficient frequency or uniformity to be characteristic. As for the lead line, it is certainly frequent even in an early stage. But though it shows that the person concerned is exposed to lead poisoning, it does not necessarily imply that this person is actually suffering from lead poisoning. It may be that the lead has become deposited in the gums from the surface of the mouth and not from the blood-stream. On the other hand, there may be no lead line in persons actually suffering from lead poisoning, passing lead in the urine, and showing basophil granules in the red blood corpuscles. Indeed, there may be the most profound lead poisoning without any lead line in the gums. The conclusion to which the authors of these papers are driven is that however tedious and difficult the laboratory diagnosis of plumbism may be, it is only by the two tests already referred to that early and accurate information can be obtained as to the existence of plumbism. The authors are apparently unaware that more lead is excreted by the bowel than by the kidney. The lead line and other clinical signs of early disease may be suggestive, but they are neither uniform nor reliable, and the lead line may, perhaps, lead to the unnecessary abandonment of remunerative employment.

FIFTY-FIFTY SALICYLIC OINTMENT.

At the close of the last meeting of the Section of Dermatology held at the Royal Society of Medicine on June 21st, Sir Archdall Reid read a brief communication on "a new method of treating skin diseases." This method is apparently a simple one, consisting merely of the application of equal parts of salicylic acid and vaseline. This ointment has, it is claimed, been used with striking success in lupus vulgaris, scabies, and particularly in acute eczematous dermatitis. It is also being used for the treatment of tinea tonsurans, in which disease, it is said, the application of the ointment is followed by degeneration of spores which can be recognised microscopically. Dr. V. J. Blake, who spoke in favour of the method, admitted that he was still sceptical as to its curative powers in ringworm of the scalp, but stated that the results up to date were more promising than any that he had obtained with other ointments. He was impressed with the rapidity of its effect in eczematous dermatitis, even in acute cases. A number of patients were shown in which the method had been used with good effect. In one, however, which was demonstrated as having been cured of extensive lupus vulgaris, the diagnosis was palpably wrong, as no trace of scarring was visible. To attempt to estimate the value of this method of treatment is obviously impossible without a personal trial, but a few comments are justifiable. It is unlikely ever to be widely adopted in scabies, however efficient it may be, since the classical treatment with sulphur ointment, if properly carried out, is so rapidly successful and very much cheaper; presumably at least 4 oz. of salicylic acid ($\frac{1}{2}$ lb. of the ointment) would be required to effect a cure in a single case. In lupus vulgaris the value of a 25 to 50 per cent. salicylic plaster (with or without creosote) has been recognised for many years, and the well-known Beiersdorf plaster of creosote and salicylic acid is widely used, particularly in lupus verrucosus. It is probable that the plaster is more potent than the ointment. On theoretical grounds it is very unlikely that the salicylic ointment would be really efficacious in the treatment of ringworm of the scalp (unless it produced suppuration in the hair follicles, and this, judging from the cases seen, it does not appear to do), the reason being that ointments will not penetrate sufficiently deeply into the follicles to destroy the fungus in the lower part of the infected hair. New methods of treating tinea tonsurans are continually being published, but none of them seem to convince the expert dermatologist of their efficacy, and epilation with the X rays still remains the method of choice in the vast majority of cases. On the other hand, it is possible that Sir Archdall Reid's ointment may prove of real value in

¹ Bulletin Médical, March 18th, 1922.

² Paris Médical, May 26th, 1923.

certain cases of eczematous dermatitis and of pyogenic infections of the skin. There is nothing new, of course, in the use of salicylic acid for the seborrhœic forms of eczema, for chronic eczema of the palms and soles, and for eczematoid ringworm; for the last-mentioned disease a saturated solution of salicylic acid in spirit is habitually used in the tropics. But if the claims put forward for the 50 per cent. ointment in acute eczema be established it may be that Sir Archdall Reid has made a valuable addition to the local treatment of this condition, and doubtless his method will be given a thorough trial.

THE CONCENTRATED ARC FOR CHRONIC ECZEMA.

A REPORT by Dr. Svend Lomholt,¹ of the Finsen Institute in Copenhagen, appears to warrant the belief that in many cases of chronic eczema which have proved refractory to the more conventional methods of treatment, concentrated carbon arc-light may effect a rapid recovery. Dr. Lomholt describes his results as remarkable, and this claim is evidently justified. Hitherto about 40 cases of chronic eczema have thus been treated, each exposure to an ordinary Finsen lamp of 50 ampères lasting for about 15 minutes. In most cases one or two exposures were given to each eczematous area, but in a few cases three exposures were necessary. In a large number the disease was of long duration and belonged to the type generally labelled as neurodermatitis. Many other methods of treatment had proved futile in most of these cases, and repeated exposures to the X rays had not achieved the desired object. But though the disease had often proved refractory to treatment for several years, a practically complete cure was effected by the carbon arc-light in almost every case. Itching and other symptoms disappeared, as well as such signs as scaling, lichenisation, and hyperkeratosis. Some slight pigmentation and hyperæmia remained after the reaction had disappeared, and the reaction itself resembled that of a slight burn. Only in a few cases was the reaction severe enough to yield vesicles and to lead to the loss of the most superficial layers of the skin. The results were not quite so good or uniform when the eczema was comparatively acute or "weeping." But even among these cases many good results were achieved. There are certain drawbacks to this treatment; it is somewhat tiring and expensive, and only a comparatively small area can be treated at one exposure. It would seem, therefore, that at present, at any rate, this treatment should be confined, as a rule, to cases which have proved refractory to other treatment. The fact that this treatment is most suitable for chronic and refractory cases is in itself the best testimony to its efficacy; when a new treatment is introduced for some disease which has not been amenable to older methods of treatment, it is seldom that the advocates of the new treatment single out the most chronic and obstinate forms of the disease on which to demonstrate their claims.

HYGIENE OF CREW-SPACES.

Dr. J. Howard-Jones, medical officer of health to the Newport (Mon.) Port Sanitary Authority, observes in his annual report for 1922 that the Board of Trade regulations controlling the hygiene of crew-spaces have not yet been revised, in spite of the fact that much greater attention has been devoted to the subject by other maritime nations in recent years than by Great Britain. The lighting regulations are not enforced and crew-spaces are often very dark, while what spaces are available for the accommodation of the men are often not used to the best advantage. Dr. Howard-Jones finds that, generally, much greater attention is paid to the comfort and sanitary requirements of the crew on foreign-owned than on British vessels of the same date

of construction. Among the thousands of ships that visit every year the port of Newport the specific defects most frequently found are as follows: defective lighting; dull-coloured paints which reflect little light and darken the already dismal quarters; defective ventilation, while at the same time the smells from store-rooms for oils, ropes, and paints and from dirty cable lockers are insufficiently excluded; dampness from leaks or from sweating of the bare iron on the ship's side. Sometimes there are no tables or seats for the men in the crew-spaces, which are their dining-rooms. The water-closets are badly placed and inconsiderately planned; they are often filthy iron troughs, ranging from 3 to 9 feet in length, with outlet direct through the vessel's side, without storm valves to prevent backwash of contents, thus fouling the unfortunate users in rough weather. The closets, besides, are often but imperfectly ventilated, with inadequate provision for flushing and cleansing. As we read this report, we recall that two years ago the town council of Newport¹ adopted a resolution affirming that the time was ripe for a revision of conditions of accommodation for seamen in the merchant service, and urged that a strong committee should be set up, representing the Board of Trade, the Ministry of Health, shipowners, shipbuilders, the officers and men of the merchant service, port sanitary authorities, and the Admiralty, to arrange that revision. Nothing was done then or since. The time is now ripe to return to the subject and to press for a revision of regulations, for though shipbuilding is now slack, its revival is surely imminent. If the regulations are not revised before that revival is upon us, the bad conditions of lodging for the men of the merchant marine may be stereotyped for another decade. From unnecessary hardships and even miseries at sea we beg the Board of Trade to deliver the British seaman.

CRANIAL ENDOTHELIOMATA.

ACCORDING to Dr. Wilder G. Penfield,² of New York, formerly Beit Memorial Research Fellow at the National Hospital for Paralysed and Epileptic, there is a group of dural endotheliomata which are manifested by a typical, slowly growing, hard prominence in the cranium. Examination of the records of 420 patients at the National Hospital who had been proved to have brain tumours at operation, on autopsy showed ten examples of this kind, in each of which the intracranial tumour was situated immediately beneath the prominence. Dr. Penfield has also collected nine similar cases from medical literature, including those which French writers have named hemicraniosis, in the belief that they were hypertrophies invariably situated in the cutaneous distribution of the first division of the trigeminal nerve. In Dr. Penfield's series of ten cases all the patients had noticed an increasing lump on the cranial vault before admission. In four cases it had been the first sign of anything wrong, and in two the enlargement was not noticed until the onset of the first symptoms. In seven cases the first symptom was pain which was usually most intense beneath the cranial boss. In two cases the first symptom was an epileptoid seizure, and in one case there was no mention of early symptoms. The symptoms following pain are due to encroachment on the cerebrum. Epileptoid seizures are common. There may be hemiplegia or symptoms of increased intracranial pressure, according to the situation and size of the tumour. The frontal bone is the most frequently affected, but the temporal or parietal bone may also be the seat of the new growth. The ages of the patients ranged from 18 to 60. Of 17 cases in whom the sex was stated, 5 were women and 12 men. Microscopical examination of endothelioma of the dura shows that it arises from the arachnoid or inner surface of the dura mater, through which it passes in a number of places and enters the overlying bone,

¹ THE LANCET, 1921, ii., 4.

² Surgery, Gynecology, and Obstetrics, May, 1923.

¹ Acta Dermato-Venereologica, vol. iii., Fasc. 3-4.

causing a complete rearrangement of the osseous structure. The bone-forming elements are caused to lay down bone in the substance of the neoplasm, the osteogenesis being greatest in the portion of the tumour between the skull and the scalp. In most cases it should be possible to diagnose the condition before the onset of the distressing cerebral symptoms. The cranial prominence, with stabbing pain beneath the tumour, is pathognomonic. Operative removal in cases where the patient has survived the immediate effects results in cure.

PRIMITIVE SEMICIRCULAR CANALS.

A VERY important place among primitive vertebrates is occupied by *Osteolepis*, which, indeed, is described by Prof. D. M. S. Watson as the oldest known bony vertebrate. It was an active predatory fish, whose fossilised remains are found in the Devonian stratum. An early gnathostome, it is to be classed among the crossopterygian ganoids, and hence is perhaps to be placed nearer the line of tetrapod descent than are some other early ganoids. It is, therefore, a matter of no little interest to find that, as Prof. Watson showed so clearly at the summer meeting of the Anatomical Society last week, the semicircular canals of this very early fish were essentially of the type which we are accustomed to associate with higher development, both in number and arrangement. It would seem to follow from this fact that in all likelihood the conditions such as are found in the hagfishes, where only one or two canals are present, are not to be looked upon as primitive—as has been the usual custom—but as secondarily acquired. This view, however, implying the loss of important functions in active animals, is harder to comprehend than the simultaneous development of the three canals, an objection stressed by some of the members of the society. Whatever may turn out to be the opinion ultimately accepted on the present-day structures in the myxinoids, the interest of the demonstration of the actual canals in position, by Prof. Watson, is very great, and its bearing on the settlement of the questions is evident.

DEATH OF THE PHYSICIANS' BEDELL.

By the death of Mr. William Fleming, which took place on June 20th, the Royal College of Physicians of London loses a very tried and trusted servant. Mr. Fleming was appointed Bedell in 1892, and held that office until his death. Before his appointment as Bedell he had been in the service of the College in other capacities for some 20 years, partly at the College itself, partly as head clerk at the Examination Hall, and had risen from small beginnings to a highly responsible post. The duties of Bedell embraced also those of general secretary, and from long and assiduous service and study he had acquired an unrivalled and detailed knowledge of the affairs of the College, both past and present, and a deep veneration for the College itself. His industry was unflagging and his courtesy to all comers unflinching. He will be greatly missed.

FELLOWS of the Royal College of Surgeons of England who have not yet voted are reminded that the election of members of the Council will take place on Thursday, July 5th, and that their votes should be sent in before 2 P.M. on that day.

THE Royal Society and the Medical Research Council have agreed jointly to receive delegates from the "British Empire Cancer Campaign" to discuss the formation of a scientific committee for the distribution of money subscribed to the Campaign for research purposes and the revision of the Articles of Association of the Campaign which may be necessary to give effective powers to the committee. Representatives of the Imperial Cancer Research Fund will be present at this conference.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXVI.

THE TREATMENT OF CYCLIC VOMITING.

THE treatment of cyclic vomiting, acetonæmic vomiting as it is sometimes called, is far from satisfactory, but I venture to think that our failures would be less frequent if the importance of some of the details of treatment were more fully appreciated. The symptoms of this condition are usually well defined and the clinical picture originally described by Gee under the name of "fitful or recurrent vomiting of children" is now well recognised. A child usually under the age of 12 years has bouts of vomiting which have generally begun during the first four years of life, sometimes in the first year. The bouts last for some days, occasionally as long as a week or ten days, and during the greater part of this time nothing is kept down, not even water. They recur at varying intervals; some children have them only two or three times a year, others have them every month or six weeks. Premonitory symptoms occur in some cases for 48 hours or less before the vomiting begins. Perhaps the commonest of these is an access of peevishness and contrariness; in several of my cases an unusual increase of appetite was noticed for one or two days before each attack; in a few the first indication of the coming attack has been the smell of acetone in the breath. Often, however, the vomiting begins without warning and very quickly becomes severe, so that the child is sick every half hour or even every ten minutes for several hours, bringing up bilious or blood-streaked vomit. Gradually the intervals become longer and perhaps after two or three days there is vomiting only three or four times a day.

With the vomiting are associated other symptoms; drowsiness is a feature in most cases. The breath has generally the smell of acetone, and deep sighing respiration is often a noticeable feature. There is usually no fever, or at most the temperature reaches about 100° F., but there are exceptional cases with considerable fever. There is almost always constipation and the stools are often pale in colour during the attack. A trace of albumin is frequently present in the urine, in addition to the acetone which is generally present by the time the vomiting begins and sometimes before. As the attack goes on the abdomen becomes more and more empty and carinated, the eyes sunken, the voice feeble or hoarse, and in a severe case the vessels of the conjunctiva are injected. The lips and tongue are dry, and though even water is vomited, the child, distressed with thirst, craves drink. In the worst cases I have seen delirium and in fatal cases coma. As the child grows older the attacks tend to become less frequent and I have seldom seen any after the age of 12 years; amongst 100 consecutive cases I found only three cases at 13-14 years, in which the attacks were still occurring, one case at 15½ years. It is, however, not right merely to comfort the parents with the assurance that the child will grow out of the condition, for not only do the attacks interfere with the child's progress, physical and educational, but they also entail some risk to life. I must have seen altogether some 150 children with cyclic vomiting and amongst these were 3 fatal cases, and a brother of one of these three had also died in an attack. Clearly it is worth while to take stringent measures, and, moreover, experience shows that more can be done in the way of prevention than of arrest.

Preventive Treatment.

Dietetic.—It has been recognised that the intake of fat in the diet plays an important part in the production of acetonæmic vomiting, but there is one fat which seems to be specially liable to excite the attacks—

namely, milk-fat. I want to lay stress upon this factor, for if it were more generally recognised many of the children who suffer with cyclic vomiting might at least have the number and severity of their attacks reduced. As it is many a child with this condition has his trouble aggravated by well-meaning but wholly mischievous treatment. When the vomiting at length ceases the child is left weak, wasted, and hollow-eyed. The mother then, either of her own initiative or sometimes by her doctor's advice, proceeds to "feed the child up," especially with "plenty of milk," and as likely as not, with cream also. The natural but unrecognised result is a gradual reaccumulation of the toxic condition, so that another attack occurs and on recovery the child is once more stuffed with milk and so the trouble goes on. I would lay it down as the first essential in the preventive treatment of cyclic vomiting that milk is to be reduced to a minimum, and that cream is to be avoided altogether. The amount of milk which can be tolerated by such children varies, but there are few who can safely take more than half a pint per diem, and there are many who will do best if the total amount of milk allowed daily is not more than 5 oz. I have seen cases in which the attacks recurred until milk was excluded altogether. If milk is allowed it must not be a rich milk, such as that of Jersey cows or some special "nursery milk"; a skimmed milk, skimmed by machinery so as to contain extremely little fat, may be useful both for drinking and for milk puddings. Cream must be forbidden. Sometimes after attacks have long been absent a recurrence has been due to a small amount of cream given as a treat. Butter seems to be better tolerated but should be used sparingly. Other fats have not seemed to me to be nearly so liable to excite attacks, nevertheless, since any fat given too liberally may have this effect, they must be used with caution. There is no reason to curtail sugars and starches. Sugar, indeed, has some special value for these children, but chocolate has seemed to me to provoke attacks; if the child is to be allowed sweets, it is well to specify plain candy sugar or barley sugar.

Drugs.—Next in value to dietetic treatment in the prevention of cyclic vomiting is the regular administration of bicarbonate of soda. This should be given in doses of about 20 gr. twice daily to a child of 3-7 years and of about 25-30 gr. to older children; in certain cases it is necessary to give it three times daily. Inasmuch as the drug has to be given regularly over a long period, perhaps two or three years, it is often convenient to order it in the dry form. The mother may be told to dissolve as much as can be piled on a shilling, which is about 18 gr., or on a florin, which is about 24 gr., in three tablespoonfuls of cold water for each dose. If hot water is used so that the bicarbonate is more easily dissolved, the bulk of fluid to be taken can be reduced. There is rarely any difficulty in getting children to take this solution; syrup can be added if desired. In cases which do not respond well to treatment with the simple bicarbonate of soda, the salt should be dissolved in a 10 per cent. solution of glucose instead of in water, for there is reason to believe that glucose has some special value in correcting the perverted chemistry of ketosis.

Regulation of Bowels.—Not only must the bowels be kept working every day, but the efficiency of the measures already mentioned seems to be increased by a regular weekly dose of some mercurial aperient, in dose sufficient to secure a thorough evacuation but not to purge; grey powder, about 2 gr., is usually suitable.

If these measures are carefully carried out the attacks of cyclic vomiting are usually greatly reduced in number and severity, and in some cases prevented altogether—so long as the treatment is continued. It is well to impress this last point on the parents; the rigid observance of the diet restrictions and the daily dosing with bicarbonate of soda and the weekly grey powder have to be continued possibly for two or three years. It is difficult to say when it is safe to relax the treatment. I have an impression that in the case of children from 2-7 years old it is advisable to allow a longer interval of freedom from attacks before discontinuing treatment than in older children, but

certainly in either case there should be at least a year entirely free from attacks before any relaxation of treatment is allowed, and even after this interval the result of such relaxation is sometimes a speedy relapse.

Treatment During Attacks.

Treatment in the attack must be directed towards two objects: (1) to counteract the toxic effect of ketosis, (2) to maintain the strength of the child. For the former purpose it is necessary to introduce as quickly as possible and in as large amount as possible some alkali; sodium bicarbonate is generally used. As it cannot be retained by stomach it must be given by rectum, and well diluted, for a large dose has to be used and it is probable that less rapid absorption takes place when a concentrated solution is administered. One drachm of sodium bicarbonate should be given in 3 oz. of water, and after three or four of these injections have been given at intervals of four hours, it may be well to substitute alternate injections of 6 per cent. glucose. Enemata are generally well retained during the attack, and the larger the amount of fluid which can be introduced this way the better. Usually nothing is retained when given by the mouth, but teaspoonful doses of the solution of bicarbonate of soda in 10 per cent. glucose or in barley-water may, at least, comfort the child, who is usually distressed by thirst. It is useless to attempt giving any other food, even broth or meat juice, by mouth; indeed, often this seems to provoke anew the violence of the vomiting. For the maintenance of the child's strength we have to rely almost entirely on rectal administration, and nothing is more valuable than the glucose solution already mentioned with a drachm or more of brandy added if necessary. In the most severe cases, when vomiting has been continued for several days, it is sometimes necessary to use subcutaneous infusions either of normal saline or of a 5 per cent. dextrose solution.

The Arrest of Vomiting.—I have left till last measures for the arrest of vomiting in the attack, for, apart from the rectal administration of sodium bicarbonate, it is doubtful whether anything is effective. Certainly none of the drugs ordinarily used for vomiting of gastric origin, such as bismuth, iodine, or dilute hydrocyanic acid, have the slightest effect, nor have local applications to the epigastrium. Hypodermic injection of morphia—1/30-1/20 gr. for a child of 4-8 years—seems to diminish the vomiting in some cases, but in most the vomiting once started runs its course uninfluenced by treatment. When vomiting has ceased for about 12 hours feeding by mouth may be begun cautiously, and I think broth and sweet jelly, and then rusk or toast and weak tea, or small quantities of Horlick's malted milk, make a good beginning; from this the child can usually within a day or two progress to ordinary diet, care being taken to avoid more than the prescribed allowance of milk.

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Special Articles.

SOJOURNERS IN THE TROPICS.*

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THE title of this lecture is intended to indicate that the white race, *under existing circumstances*, cannot be looked upon as more than wayfarers in the tropics, as people who have there no continuing city in the sense that they can settle and rear a progeny blessed with the energy and virility which characterise, let us say, the Northern European or the inhabitants of the Northern United States. Fresh interest was imparted to this subject when Huntington published in 1915 his fascinating and suggestive work "Civilisation and Climate," a book which, unhappy in the time of its birth, is not sufficiently well known, and deserves to be studied by all concerned with what is certainly an imperial aspect of the public health. Speaking generally, what Huntington really set himself to do was to determine how much truth exists in the old, if somewhat impolite, adage which, indeed, he quotes: "No one is worth a tinker's damn on whom the snow does not fall."

The world is his oyster and in prising into it he goes far beyond the limits of our present inquiry, but he touches upon the question of the white man in the tropics again and again, and appears to throw fresh light upon a problem which has vexed men since the days of Aristotle. There is no need, however, to hark back to the time when the ancient Greeks argued as to the effect of climate on mankind for, like Huntington, they were concerned chiefly with its influence on the higher civilisation. This the American author regards as including the power of initiative, the capacity for formulating new ideas and for carrying them into effect, the power of self-control, a high standard of honesty and morality, the power to lead and to control other races, the capacity for disseminating ideas. These and similar qualities he says, find expression in high ideals, respect for law, inventiveness, ability to develop philosophical systems, stability and honesty of government, a highly developed system of education, the capacity to dominate the less civilised parts of the world, and the ability to carry out far-reaching enterprises covering long periods of time and great areas of the earth's surface.

THE WEST INDIES.

A much simpler question, which must take precedence—namely, the question as to whether the white man can preserve his health in a hot climate like that of Jamaica—was answered by Charles Leslie in 1739, who says: "The general complaint which is made of the Unhealthiness of this Place is founded upon a perfect mistake. If New-comers would preserve a due Regimen and live temperately, they might be as happy here as anywhere in the World." Like Sir Hans Sloane before him and Lady Nugent after him, he makes it only too evident that the white residents in Jamaica—the men at least—too often, by their copious libations, washed themselves into graves which they had dug with their own teeth. As the racy old Lady Nugent wrote, "they eat like cormorants and drink like porpoises." The latter part of her simile may be erroneous, zoologically speaking, but her meaning is very clear.

Now this little side-light on Jamaica in the olden days recalls the fact that the problem which faces us is a complex one. In other words, the effects of climate are inextricably mixed with those of other factors:

economic, social, religious, historical, dietetic, and, most important of all, medical. If we confine ourselves to the tropics we shall find that it is almost impossible to eliminate the disease factor, especially malaria. It is true that Barbados is not plagued with paludism, but there ankylostomiasis is present, and hence its "poor white" problem cannot be studied to advantage. At the same time the facts are interesting. The "poor whites" in that colony, as in Grenada and Jamaica, are in a good many cases descendants of people who had blue blood in their veins, and who were sent out as political prisoners to labour as bondsmen on the plantations. A goodly number, though by no means all, are of pure European descent. Although, as Watts and Nicholls maintain, there are doubtless many native whites quite healthy and capable of work, the race, as a whole, has degenerated, or perhaps we should say its adult representatives are degenerates, for the children when quite young are often most attractive and appear intelligent. I have rarely seen such beautiful examples of childhood as two "poor white" bairns I found ill with enteric fever in the hospital at St. Johns, Barbados. Incidentally, I would, as once before, advance a plea on behalf of the children of these "poor whites." Will no one save them from the degradation which assuredly awaits each succeeding generation? In Barbados they soon pick up the hookworm with its inevitable concomitants, at least if the infestation be severe, of bodily sloth, stunted growth, and mental hebetude. In Grenada they get both ankylostomiasis and malaria, and in both islands they too often take to drink and acquire venereal disease. Poverty has them in its grip, and they are despised even by the negroes, who jeer at them as "Red Legs." It is a sad business, but one wonders how much is really due to climate alone. As I say, the offspring of these poor whites frequently look very different from their parents. It would be instructive, as well as humane, to remove them at an early age from their surroundings and to see how they would develop in a favourable environment. Here is good work for some philanthropic millionaire.

The island rock of Saba, one of the Lesser Antilles, is said by Hintze, a cautious writer with 15 years' experience in various parts of the tropics, to afford a better example of the persistence of a healthy white race in a hot climate, for it is free from any great prevalence of disease. I have only seen Saba from the sea. It is a Dutch island and was settled by white men in 1640. The race has remained pure, and the people, stated to be intelligent, are chiefly farmers and sailors. The women are said to be the handsomest in the West Indies, and to be distinguished by their slimmest and healthy appearance. Such signs of degeneration as exist—insanity and idiocy in one village—are attributed to inbreeding. This question of inbreeding is always one of the disturbing factors which are cropping up. It has, so far as I know, never been scientifically studied in the case of existing settlements in the tropics, and there is a great deal of vague generalisation as to the harm it produces. Yet the late Sir Armand Ruffer, in his careful studies on the palæopathology of Egypt, did not find that the consanguineous marriages in the royal families of ancient Egypt produced any dire effects upon the offspring born of them. On the contrary, speaking of the Ptolemies, he says: "The children from these incestuous marriages displayed no lack of mental energy. Both men and women were equally strong, capable, intelligent, and wicked." Here, too, there was a much closer inbreeding than ever occurred in a place like Saba. The conditions on this island appear to prove Hintze's case that it is not necessarily the climate which is at fault in most tropical countries, but the concomitants. At the same time, the evidence leaves something to be desired.

According to Dr. Boecke, the blonde and blue-eyed white fisher folk in the neighbouring island of St. Martin are a healthy and vigorous stock. They also date back to the middle of the seventeenth century. Like the inhabitants of Saba, they have been in contact with negroes, but appear to have bred true and to have maintained their European characteristics. Another

* The first of a series of lectures delivered at St. Bartholomew's Hospital on June 12th, 1923, under the auspices of the Academic Council of the University of London.

island worthy of consideration is Curaçao. When there early in 1914 I noticed how sturdy and well conditioned many of the white settlers, both male and female, were, and was not surprised to find that Hintze, quoting van Blom, states that these traders and planters, who have been there for many generations, are accounted healthy and vigorous. At the same time Curaçao is quite unlike most of the other West Indies. It is a dry, bare place, reputed very salubrious, and more like a chip of one of the more barren parts of South Africa dumped down in the Caribbean, than a typical tropical island. Moreover, it is kept very clean by the enterprising Dutch, and presents a surprising contrast to the neighbouring mainland of Venezuela.

THE EAST INDIES.

Turning now to another part of the world, we find that what obtains upon the island of Kisar, or Kissa, is always advanced as proof positive that the descendants of Europeans, who for generations have been restricted to tropical conditions, need not succumb to the influence of their surroundings. Attention was first directed to the inhabitants by MacMillan Brown in his work "The Dutch East," wherein he wrote:—

"In 1665 eight Dutch soldiers were sent by the Netherlands East India Company to the little island of Kissa, 16 miles off the most easterly point of Timor; a fort was built and they were told to watch the Portuguese. The Company forgot all about this lonely outpost, and Sergeant Kaffyn and his men realised that they were, in fact, marooned. They had their wives with them; a guiding principle of the Dutch East India Company. They set to work to build houses and cultivate the land. The descendants of these eight couples still remain. They have been wonderfully fertile; in the two and a half centuries the 16 have risen to 300, and they are a sturdy race with no signs of any evil effects from interbreeding. They still keep their blood pure and still have big families, and many have fair European faces and complexions and many children have light hair and blue eyes. These people had to work, and work hard, and the consequence is that after 250 years in this tropical island they are still fertile, indeed prolific, and still keep their North European characteristics."

According to Prof. Brown, many of the settlers are pure Dutch, and I gathered from his book that the island they inhabit is naturally dry, and hence presumably healthy. The little colony has, however, been visited recently by Dr. Elkington, who has made a fairly complete study of the conditions obtaining. His inquiries, embodied in his paper "The Mestizos of Kisar, Dutch East Indies," though strengthening rather than controverting the main argument, brought to light certain facts which should be stated, as it appears that Prof. Brown's account of the little colony requires considerable modification. Indeed, Dr. Elkington, who is Chief Quarantine Officer for the North-Eastern Division of the Commonwealth of Australia, speaks of it as a romantic tale. His own account of the history of the settlement may be summed up briefly as follows:—

At various dates between 1783 and 1819 there came to Kisar as soldiers or officials nine men of Dutch origin who took to themselves wives. Of these five married women of Dutch blood like themselves and four married women who were more or less tinged with coloured blood. None of the families date back further than the last quarter of the eighteenth century at earliest. In 1819 the Dutch East India Company decided to withdraw from Kisar the little garrison of soldiers and officials which had been posted there for over a hundred years previously. All the European families except these nine, and probably three or four others of originally European name who had become almost indistinguishably submerged in the native population, thereupon left the island.

At the time of the withdrawal of the Dutch garrison the coloured population of Kisar numbered at least several thousands. At the present day it comprises some 9000 people. There was very little inter-marrying between the European community and the natives, but it would seem that Europeans did wed persons of mixed origin, a point of some little importance. For some 60 years after 1819 the community was practically forgotten and unvisited. The island, a dry, unattractive place, is not readily accessible from the sea. When rediscovered, as it were, in the "eighties" of last century, the European community had greatly

degenerated, both physically and mentally, had relapsed into heathenism, and had lost the Dutch language. The Dutch Government set out to rescue and to elevate them and, as will be seen, has in large measure succeeded. Some were transferred to Koepang (Dutch Timor) and a few went elsewhere. Now there are about 200 at Kisar and 100 at Koepang. Dr. Elkington, who visited both Koepang and Kisar in 1921, describes a third of this special community as having fair hair, blue eyes, fair complexions and skin, and distinctly European features and build. Even in those families and individuals showing considerable intermixture with native blood, the European type of features persists. Apparently the children are for the most part mentally alert. There is said to be no mediocrity amongst them. They react to education either very well or very poorly. The majority do well. A medical examination conducted at Kisar in 1904 showed the Mestizo children of that day to be mentally backward and physically degenerated, but Dr. Elkington found no obvious sign of physical degeneration at the time of his visit. Six out of 20 children examined had enlarged spleens due to malaria. He suggested the desirability of applying a series of Binet-Simon or Porteus tests for mental reaction and of undertaking an examination for hookworm. It may be said that the people weave cloth, make chairs, breed goats, cultivate maize, vegetables, and fruit, and catch fish. Their homes are of the native type, but are clean and well kept, and possess a little European furniture. Dr. Elkington's conclusions are as follows:—

1. That nine families of originally North European or mixed North European and native blood have persisted on Kisar for over 100 years and have bred to five and six generations. In the case of the Joostensz family, the known date of birth of the eldest Kisar-born child of European blood was 1789. His descendants down to the year 1914 numbered 38 at least and possibly more. His father, J. W. Joostensz, commandant at Kisar in 1817, was born at Macassar in 1767, giving an uninterrupted period of tropical residence for this family of 154 years on the paternal side and at least 135 years on the maternal side.

2. That this has not been accompanied by loss of European characteristics of complexion and features, except as a result of admixture of native blood, and that even when so diluted the European physical characteristics still come out strongly in the fifth and sixth generations.

3. That the European standard of mentality, as shown by reaction to European methods of education, persists in substantial degree after five and six generations.

4. That these characteristics have survived in spite of environmental conditions and associations lasting for over 60 years, from 1819 onwards, and probably for some 70 years or more, which are generally supposed to be totally unsuitable for persons of European stock. These conditions have included native standards of food and food-supply, endemic malaria, the psychological effect of what must have been for the earlier generations an acute sense of abandonment by their own race, life under the rule of native chiefs, constant association with a native race of low mentality, loss of European language and European religion, interbreeding to a high degree, and constant exposure to a tropical climate.

5. That there is nothing in the available history of these people to show that a tropical climate *per se* has tended to produce degenerative effects on them or to limit fertility.

6. That whatever evidence they may have shown of lowered physical or mental activity in the past can be fully explained by the environmental conditions of food-supply, malaria, and particularly of native associations, aided possibly by the accentuation of stock-weaknesses arising from interbreeding over several generations.

7. That the measures adopted by the Government during recent years appear to have resulted in definite improvement in their physical and mental condition, particularly amongst the children of school age.

This is a remarkable record, but the very admixture of native blood may have played a part in the development of resistance to climatic conditions. It would appear that there are disturbing factors and there is an admission of distinct lowering of the physical and mental standard in the past, which, in its turn, may have been due to the mixed blood. The supposed ill-effects of inbreeding are, as ever, suggested, but apart from what Ruffer has shown regarding the Ptolemies, observations made in France and Denmark on the vitality of children resulting from the marriages of

first cousins do not appear to prove that such unions are deleterious.

It may be said that although these various instances prove, or seem to show, that a white race can persist in the tropics without degeneration, mere persistence is no great matter; and it may be asked have any of these communities produced individuals of note, persons of outstanding ability, such as they would almost certainly have evolved had they existed in temperate climes? In this respect history is silent, but it must not be forgotten that a great deal depends upon opportunity and that these isolated islands afford little scope to those, if any such there be, with the capacity of rising above their fellows. It is, I think, curious that most of the examples cited concern the Dutch, and it may be thought that the stolid and persevering Dutchman is better adapted to withstand the malign influences of the tropics than other north European races of a more sanguine temperament, but, as we shall see later, this would not appear to be the case. Moreover, there are said to be signs of degeneracy amongst the members of the third generation of a Dutch colony founded in 1845 on the Saramacca River in Dutch Guiana.

CUBA.

One cannot overlook a paper published by Dr. Juan Guiteras in 1913. He also deals with an island which I have been privileged to visit, but it is a very large island, the Pearl of the Antilles. The race of which he writes is Spanish, not Dutch, and he is very emphatic in what he says, and answers some of the questions I have raised. Being the Director of Health and a Cuban by birth, he speaks with authority, and as the result of ripe experience. Briefly reviewing the history of the subject, he recalls various disasters which have attended white settlements in the tropics, and asks if malaria and hookworm were not the destructive factors rather than the climate itself. He notes the tendency there has been to ignore the accomplishments of the Spaniards and Portuguese in the colonisation of the tropical regions of America, and believes this has, in large measure, been due to a misunderstanding as regards the word "creole," which in Cuba does not signify a half-breed. The general death-rate for the island is low, even though there are no altitudes sufficiently lofty to bring about conditions like those of a temperate or even a sub-tropical zone. The coloured population compared with the whites is said to be slowly diminishing, and evidence is advanced to show that the white race has not only persisted, but prospered without any intermarriage with black or coloured folk, and without the frequent introduction of fresh elements from the temperate zone.

The highest proportion of whites is found in the Province of Camagüey, where there are extensive plains favourable for stock raising. Hence, sugar-cane and coffee plantations with their, as Guiteras terms it, *necessary* accompaniments of negro slave-labour, do not enter into the industrial life of the province. Until recently it was difficult of access, so that there was little immigration. Says Guiteras:—

"Now the interesting fact in connexion therewith is that this province, with a minimum of intermixture of the white and black races, and with a minimum of importation of a new white element from abroad, presents the finest type of the white race in Cuba; the people of this province are rather tall, handsome, often fair-eyed, with fine sunburned complexions and dark hair. Though the number of the population is below that of the other provinces, Camagüey has contributed its quota of men of action and high intellectual attainments. There we find also the largest families on the island. The average size of the family in Camagüey is 5.5. For the native white family it is 5.8, and for the white foreign and the negro families it is 5.0. In the rest of the island it is lower. The minimum is reached in Matanzas, with 4.2. In many of the families of Camagüey the Spanish ancestor has to be sought several generations back. In the province of Camagüey the mortality is low and the birth-rate high, 38.6 for the year 1912. The death-rate in 1912 was 11.15. The province of Pinar del Rio is the only one presenting a lower figure, 10.25, but its birth-rate is low, 22.8 for the year 1912. The Province of Camagüey also presents the highest death-rate from old age."

The white Cuban family is also found everywhere throughout the island and, in the country districts, consists of a hardy race of medium stature, dark-complexioned, lean, frugal, and industrious. Guiteras thinks the Spaniard has taken kindly to acclimatisation owing to his method of living, which we will consider later, and his sobriety as compared with northern Europeans. He sees no lack of energy either amongst adults or children. The peasants work the fields the whole year, the child is vigorous at games, the Cuban generally active, lively, and talkative. It is worthy of note that Cuba, with a population a little over 2,000,000 inhabitants, exports products of her soil and her industries at the rate of over \$110,000,000 a year. Finally, although Guiteras admits that the proper channels of energy are generally lacking or misdirected at the present time amongst white communities of the tropics, he has no doubt that a reservoir of Caucasian energy is to be found there, and to prove his point, cites Alexander Hamilton, born on the island of Nevis and accounted by some as the possessor of the finest intellect ever bestowed on man, and Carlos Finlay, a notable pioneer in tropical medicine.

Certainly in the hands of Guiteras the white race in Cuba makes a good showing. Perhaps the Spaniard is on rather a different footing from the more northern European. His home country is a land of the sun, at least for a goodly part of each year. Many a Spaniard has a touch of Moorish blood coming originally from subtropical lands, and his very swarthinness may aid him. Again, modern Cuba undoubtedly owes much to the restless and pushing American, who in some parts may possibly have supplied the stimulus which the climate may not furnish. These, however, are but conjectures, and Guiteras's contribution to the discussion must be given due weight and cannot be lightly set aside. Certainly it contrasts with Hintze's statement to the effect that the Spanish and Portuguese settlers have become so mingled with the indigenous population that in the whole of Spanish and Portuguese America (which presumably includes Cuba) scarcely a single pure-blooded white family can be found. I am, however, inclined to think that this is too sweeping an assertion. Such families certainly do exist at Bogota in Colombia and in other parts of South America.

THE BAHAMAS.

Huntington, who is not of the school of Guiteras. Stokris, Manson, Sambon, and, it may be added, Gorgas, has something very different to say, and, like Hintze, he goes for his proofs in part to island communities. What he writes about the Bahamas is highly suggestive. Now the Bahamas lie outside the tropic belt, but anyone who has been at Nassau must admit that there is something very tropical about its bright, strong sun, and the vivid blue of its sea. In any case, the fact that the Bahamas are only sub-tropical adds weight to Huntington's findings. The islands are healthy. Malaria is uncommon and ankylostomiasis is said to be practically unknown, probably owing to the fact that even after the heaviest rain the soil dries with remarkable activity, and is therefore unfavourable for the development of the hookworm larvæ. The white colonists came partly from Great Britain, partly from Georgia and other Southern States, which, being Loyalists, they left at the time of the War of Independence, sacrificing all to live under the shadow of the Union Jack. This alone shows that they must have been people of some character and independence. Indeed, they were of the same stock as those who emigrated to Canada. The latter prospered, but the former have retrogressed. It is true that a certain moiety of the better class Bahamans have, as Huntington puts it, retained their inheritance, and that the younger members of the community have frequently, in the northern United States or England, shown marked ability, but a large proportion have become "poor whites"; the stigma is upon them. They are described as having an intense and bigoted speech, sunken cheeks and eyes, sallow complexions, and an inert way of working. They, like the negroes about them, till the soil, sail boats, and

gather sponges, but in some respects they have fallen below the level of the negro. They are his inferior in strength, docility, and faithfulness, though they beat him in mental quickness and initiative, relics of a priceless inheritance; and Huntington considers various causes which may be to blame—monotony in diet, an easy life due to a fertile soil—though, as a matter of fact, hard tillage is required, for the soil if rich is thin and the abundant rocks preclude the plough. Hurricanes, isolation, and so forth, are all mentioned, but the author concludes that the root of the matter is the inertia due to climate. It is, to put it tersely, a slack climate. The quaint remark of an American is recorded: "Until I came to the Bahamas," said he, "I never appreciated posts. Now I want to lean against every one that I see."

The thermometer in the Bahamas practically never goes below 50° F. There is a lack of stimulus both to the body and to the mind. The same, according to Steudel, is true of Samoa, where the pure German race did not flourish and the situation was saved by the development of half-breeds.

MAURITIUS.

Mauritius, an island just within the tropics but the happy possessor of a climate so modified by its southerly situation, the surrounding ocean, and the influence of the trade winds that it cannot be termed tropical save in the coastal zone during the summer months, is worthy of passing notice. As in the Bahamas, climatic conditions are mild and equable, and there can be no doubt that Mauritius is in many ways a lotus land. Yet none can declare that the European community, consisting largely of the descendants of French families and numbering some 10,000 souls, are lacking in intelligence, energy, or enterprise. Indeed, considering its size and remoteness, Mauritius has produced a remarkable number of distinguished men, amongst whom one may merely mention Brown-Séquard, the famous physiologist, and Prosper d'Epinay, the distinguished sculptor. Even before malaria drove the white colonists out of the coast towns, and forced them to live anywhere up to an altitude of 1800 ft., there was no sign of decadence. It is what we may call an easy-going and pleasure-loving spot, but physically and mentally its white people, a considerable proportion of whom possess some tincture of Indian or Creole blood, can hold their own with most races. At any rate, there is nothing comparable to the "poor white" Bahaman, and yet the temperature never and nowhere falls below 44.6° F. Is it, then, because of race, altitude, soil, or general social conditions that the "poor white" Mauritian scarcely exists? I confess the question is puzzling, but it is probably an economic one, for few of the Europeans in Mauritius have ever been hewers of wood or drawers of water.

After all, however, islands, at least of the type with which so far we have exclusively dealt, have certain peculiarities. The sea and the sea breezes modify their climates, they are isolated, life upon them is circumscribed, they are centres of monotony. Hence it is well to cull examples from other sections of the globe. Changing the order in which we have considered the protagonists of the two opposing theories and taking Huntington first, we find that he scarcely considers any of the extensive land stretches in the tropics from the point of view of white settlement, though he has plenty to say about their native inhabitants. Curiously enough, he ignores tropical Australia, possibly because its colonisation is so recent, possibly because its European population is small. Into the interesting comparison he draws between the inhabitants of the southern and northern United States we need not enter beyond mentioning that he finds for the Yankees, gives good reasons for so doing, and states them in a very courteous and pleasant manner.

SOUTH AFRICA.

What he says about South Africa is perhaps more to the point, for some of the Transvaal and the whole of Rhodesia lie within the tropic belt. He is, I confess, rather surprising on the subject. Although I know

something of South Africa I admit that I had no idea that a large number of the Europeans—even a tenth, according to ardent believers in the future of South Africa—are "poor whites," a shiftless set, living from hand to mouth, proud of their race, yet less efficient than the blacks. Accordingly I referred the matter to Colonel P. G. Stock, of the Ministry of Health, who knows South Africa intimately, and he confirmed Huntington's statement, pointing out, however, that in parts of the Transvaal chronic malaria may be to blame. "Most of them," says our author, "appear to have been born in the country and lack initiative and energy." He goes on to remark that the problem is economic, but that, as he puts it, "back of the economic facts, and in many ways conditioning them, lies the climate." What follows will be news to some. "South Africa," he continues, "is supposed to have a climate admirably adapted to Europeans. I shared the common opinion until I began to gather statistics of the effect of climate upon efficiency. These, as will be shown later, indicate that although the South African climate is pleasant, it lacks the stimulating qualities which are so important in Europe and North America. The lack of stimulus increases rapidly as one goes from south to north."

In the civilisation maps which form such a feature of his book, while England and the Northern United States stand at 100, the Union of South Africa has only 72 to its credit, a somewhat low figure even when the presence of a large native and coloured population is taken into account. Huntington maintains that the white settlers are everywhere at a disadvantage compared with the natives, especially the Bantus, who by coming south have bettered their climate. He says that no one can predict what will happen, but it is scarcely conceivable that he entertains doubts as to the future of the white South African nation. In any case, the consideration has rather led us away from the tropics, though its interest may perhaps atone for the digression.

CLIMATE AND THE NERVOUS SYSTEM.

Huntington, then, though he proceeds on lines of his own in magnifying the importance of climate *per se*, belongs to the school which subscribe to the dicta of Anderson, another American. I need only mention four of these, which are to the effect that in the tropics the white man, individually, can exist, racially he cannot persist; that acclimatisation is not possible; that only by partial enslavement of the coloured natives, superior in numbers, can the white man rule and govern in the tropics, and it is only by relays of fresh representatives he can continue his sovereignty; that no colony of northern origin has even been able to lead a permanent and independent existence in the tropics. Sir Havelock Charles is a stout supporter of this view, starting from Cuvier's axiom that "The nervous system is at bottom the whole animal, and the other systems are only to serve it." He maintains, therefore, that if you damage the subservient systems you harm the whole animal—i.e., the nervous system—and that tropical climates injure the various systems of the body apart altogether from the dangers of attack from parasitic enemies.

This, it may be said, is quite at variance with the opinion expressed by the Tropical Diseases Board and by Chamberlain in the Philippines, to return for a moment to islands of the sea. They found that there was no evidence of any serious effect on the nervous system of American soldiers as the result of the Philippine climate, but after all they were only dealing with the short period of five years. And yet perhaps the broad verdict of history to which Anderson and Sir Havelock Charles appeal carries more weight than countless arguments. A few swallows do not make a summer, and isolated examples like those quoted from the West Indies, Kisar, and so forth must be weighed against the silent testimony of the centuries, even if it is admitted that only of late years has it been possible to combat those disease concomitants of climate to which some would attribute wholly the malign influence of the tropics.

PANAMA.

Let us, however, see what further proofs these advocates can advance. Gorgas speaks with no uncertain voice:—

"The real scope of tropical sanitation, which has been almost entirely developed within the last 15 or 20 years, I believe, will extend far beyond our work at Panama. Everywhere in the tropics, to which the United States has gone in the past 15 years, it has been shown that the white man can live and exist in good health. This has occurred in the Philippines, in Cuba, and in Panama, but the demonstration has been most prominent and spectacular at Panama, and therefore has attracted there the greatest world-wide attention. Here among our large force of labourers we had for ten years some 10,000 Americans—men, women, and children. Most of these American men did hard manual labour, exposed to the sun, rain, and weather conditions day in and day out, yet during that time their health remained perfectly good, just as good as if they were working at home. The same remark as to health would apply to the 4000 women and children who lived at Panama with their husbands and fathers. Both the women and children remained in as good condition as they would have been had they lived in the United States. This condition at Panama, I think, will be generally received as a demonstration that the white man can live and thrive in the tropics. The amount of wealth which can be produced in the tropics for a given amount of labour is so much larger than that which can be produced in the temperate zone by the same amount of labour that the attraction for the white man to emigrate to the tropics will be very great, when it is appreciated that he can be made safe as to his health conditions at a small expense. When the great valleys of the Amazon and of the Congo are occupied by a white population more food will be produced in these regions than is now produced in all the rest of the inhabited world."

Here, indeed, is a hopeful prophecy, but let it not be forgotten that though Gorgas was a splendid man and a great practical hygienist with fine driving power, he is not generally regarded as in the first rank of scientific observers. He may be right, but I saw some of these same Americans in Panama and they struck me, more especially the women, as spiritless and tired. Doubtless there were exceptions, but the people I met were those who were keeping the flag flying after all the strenuous work had been done, the great undertaking completed. They were no longer buoyed up by expectation and by the thrill of great events, and to my mind they were beginning to suffer—not from disease, but from the effects of climate. I greatly doubt if we shall ever see succeeding generations of Panama-born Americans.

ESPIRITO SANTO, BRAZIL.

But Gorgas does not stand alone. Wagemann has described the German colony of Espirito Santo, Brazil, which is on the coast, at 20° S. It was founded in 1847 and the original Rhenish families have been reinforced on several occasions. The pioneers were nearly conquered by nature and disease, but eventually made good. Now 5000 square kilometres have been settled and there are eight communities, comprising in all 17,000–18,000 souls. The colony is flourishing. The birth-rate in various parts is between 48 and 70 per 1000 and the death-rate 8–14 per 1000. There has been no intermarriage with the natives. One would like to know more about this interesting experiment, but we can only note that it has not been very long in existence and hesitate to draw any definite conclusions from it.

RHODESIA.

On our way across seas to Australia, where a battle-royal has been waged and is still in progress over this question, let us glance for a moment at Rhodesia, especially in view of Huntington's remarks on South Africa generally. There we find an advocate for white settlement in the person of Dr. A. M. Fleming, who has been the principal medical officer of Southern Rhodesia for many years. He admits that Rhodesia is a new country and that the European adult population are not yet acclimatised to the land of their adoption, but, provided disease is kept in check, he sees no reason why they should not flourish there. He recalls the early days when almost everyone in the country looked

yellow, anæmic, and fever-stricken at certain seasons of the year, when it was openly said that Southern Rhodesia was no country for a white man and when he himself had misgivings on this score. Now he states that at any gathering of settlers at Bulawayo, Salisbury, or other centre it would be hard to find a collection of people whose general physical fitness was so apparent or who exhibited less evidence of degeneration. He lays special stress on the satisfactory development of the children both mentally and physically which he considers rather in advance of that seen in children of the same social status in more temperate climates. Hintze, though cautious, seems inclined to agree with him, but recently Hewetson took up the cudgels on behalf of the opposition. He points out that miscarriage is more common in white women in the tropics than amongst the blacks, and that the general birth-rate is lower. (There are, however, surely other reasons than climate to account for these differences.) On the other hand, like Sir Havelock Charles, he concentrates on the question of neurasthenia and the malign effects of constant sun and excessive heat. The more one studies the literature, which has now attained formidable dimensions, the more is one reminded of a game of nine-pins. No sooner are arguments advanced by one protagonist than they are demolished by another, and there are doughty champions on either side.

AUSTRALIA.

It is impossible, in the time at my disposal, to discuss all that has been written on the subject of a white Australia. Only a few salient points can be considered. Tropical Australia contains no less than 1,149,320 square miles, and the development of this huge area depends on whether white men can live and work in it, not as they live and work in a country like India, but as tillers of the soil, as herdsmen, as labourers pursuing all those avocations which, as a rule, fall to the lot of the coloured races in the hot regions of the globe. The problem, as Breinl and Young pointed out, is by no means simple, for it includes not only the effects of climate but important economic considerations. Sir James Barrett has laid stress on the latter, but to-day we are only concerned with the former, and in considering them we must remember that the conditions in Northern Australia are somewhat specialised. Breinl and Young comment especially upon the hot winds, the frequent droughts, the influence of the long dry season on insect life and on tropical diseases which are insect-borne, and contrast the conditions of the littoral with the hinterland.

Although it is true that the desert regions of northern Australia differ from what many have in their minds when they think of the tropics, yet they possess their counterpart in countries like the Northern Sudan and Mesopotamia, where no question of white settlement has ever been mooted, or is likely to be. On the other hand, the scarcity of the aboriginal inhabitants is a distinctive feature and possesses considerable importance. It was doubtless partly as the result of experimental work carried out by Breinl, Young, and Priestley at Townsville in Queensland, and in view of the vital statistics which they collected, that the Subcommittee of Investigation, appointed by the Australian Medical Congress held at Brisbane in 1920, issued the following pronouncement:—

"After mature consideration of sources of information embodying the results of long and varied professional experience and observation in the Australian tropics, the Congress is unable to find anything pointing to the existence of inherent or insuperable obstacles in the way of permanent occupation of Tropical Australia by a healthy indigenous white race. It considers that the whole question of successful development and settlement of Tropical Australia by white races is fundamentally a question of applied public health in the modern sense, such as has been demonstrated and practised with success amongst civil populations under far more difficult conditions, by the American authorities in the Philippines prior to the Great War, and throughout the military forces of every allied power during that war. It considers that the absence of semi-civilised coloured peoples in Northern Australia simplifies the problem very greatly.

But it desires to emphasise in the strongest manner that any considerable extension of population and settlement under the existing loose conditions of sanitary administration and sanitary practice, using these terms in their modern wider sense, which prevail at the present time in Tropical Australia, cannot hope for lasting success, and cannot fail to result in ultimate disaster. The Congress recognises that a large amount of work still requires to be done in working out the practical details of any scheme of settlement, but it considers that it presents no difficulties beyond those of organisation, staff, time, and money. It realises that a great national question is involved, but it is unable to discern any obstacles which cannot be overcome by earnest and skilful application of the principles of statecraft."

A large majority of the Congress adopted this resolution, but there were not wanting dissentient voices. For example, Nisbet, of Townsville, speaking from 31 years' experience, affirmed that the population of North Queensland was migratory, the death-rate low because it was the desire of inhabitants to get away from it during the autumn of their lives. The report of the Subcommittee dealt chiefly with the male population, but the young married women, according to Nisbet, were greatly overdone with domestic duties under conditions of great heat and humidity—the said heat leading to debility and neurasthenia. He was of opinion that the evil result of the northern climate would not be obvious till they had a settled population.

Since 1921 a few papers have appeared which merit attention. Sir James Barrett gives general mortality and infant mortality rates for the whole of Queensland from 1911 to 1920 inclusive. In 1920 the general mortality rate was 11, the infantile mortality rate 63. For each of the years specified the general mortality rate for Queensland was below the Commonwealth average on six occasions and above it on the other four. In respect of infant mortality, Queensland was below the Commonwealth on nine occasions and above it on one only. Sir James, however, does not take Nisbet's statement into account, nor does he consider that the Commonwealth statistics are concerned much more largely with urban conditions than those of Queensland. It would seem also that there has been a tendency to regard Tropical Australia as synonymous with Tropical Queensland, which is unfortunate, for Tucker has drawn attention to the fact that nearly two-thirds of Queensland consist of a region about 100 miles from the sea, averaging 800 ft. in height, and possessing a fine winter climate and a tolerable summer climate, with—and this is very important—cool nights. There is a wide variation between the wet and dry bulb temperature, and hence a rapid evaporation. Tucker, indeed, furnishes much the same information as Prof. Skertchly, the geologist, to whose writings Sir James Cantlie recently drew attention. Priestley has recently stated that he found no signs of deterioration in the third generation of children born in the Australian tropics, an important pronouncement. Unfortunately, full particulars have not been forthcoming.

The latest, and one of the best contributions to the subject, is a paper by Cheyne which will be found in the *Journal of Tropical Medicine and Hygiene* for March 1st of this year. It should be studied in the original by all interested in the problem, for not only does he give a useful physiographical and meteorological account of the whole area of Tropical Australia, so far as it is known, but he discusses the question of the rôle of the sun, the prevalent diseases, various economic factors, health conditions, and very specially the effect of the climate upon the women. He agrees with Nisbet that they find the conditions trying and are frequently neurasthenic, but says that whether the climate or the environment is to blame is a moot point.

The following are his conclusions:—

"With our present knowledge there would appear no scientific reasons why white people should not successfully inhabit the north. These conclusions, however, must be accepted with caution, and will have to bear the test of time. Three or four generations of whites, born, bred, and intermarried in the tropics, must elapse before the problem can

be considered as solved. Meanwhile, every effort should be made to carry out under good conditions this vast physiological experiment. Under present circumstances, whether the north will become closely settled by whites is quite another matter. The north, taken as a whole, appears more suitable for sheep and cattle grazing than for close settlement. Griffith Taylor, after a careful comparison of meteorological conditions, says that the northern lands are not well suited for close white settlement. This is chiefly because of the lack of surface water, and of the monsoonal character of the rains, which cause a prolonged dry spell during the winter. There are, however, several rivers in the Gulf country, such as the Roper, which flow throughout the year. No doubt, under present conditions, Taylor's conclusions are just, but with our knowledge of what modern irrigation has done, there is no reason why—apart from economic questions—large areas should not be made available for fruit and cotton growing. Some observers seem to imagine that coloured races can be permitted to enter the north and remain confined there. This is contrary to common-sense, and the ultimate and logical termination to the admittance of coloured races would be the eventual formation of a mixed Australian people. Any sacrifice is worth making which keeps Australia white."

With Cheyne's conclusions I may fittingly conclude this lecture.

References.

- Anderson: The White Man in the Tropics. Jour. Amer. Med. Assoc., 1908, l., 1780.
 Med. Jour. of Australia, Sept. 18th, 1920, p. 291.
 Barrett, James: United Empire, 1922, xiii. (New Series), p. 679.
 Barrett, J. W.: Med. Jour. of Australia, July 23rd, 1921, p. 73.
 Breinl, A., and Young, W. J.: Med. Jour. of Australia, 1919, i., 353, 375, and 395.
 Brown, J. Macmillan: The Dutch East. London, 1914.
 Cantlie, J.: Jour. of Trop. Med. and Hyg., April 16th, 1923, p. 124.
 Chamberlain, W. P.: Philippine Jour. of Science, 1911, vi., 427.
 Charles, Sir Havelock: Trans. Soc. of Trop. Med. and Hyg., 1913, vii., 2.
 Cheyne, W. H. W.: Jour. Trop. Med. and Hyg., 1923, xxvi., 71 and 82.
 Elkington, J. S. C.: Med. Jour. of Australia, Jan. 14th, 1922, p. 32.
 Fleming, A. M.: The Settlement of Southern Rhodesia (unpublished note).
 Gorgas, W. C.: Boston Med. and Surg. Jour., August 5th, 1915.
 Guiteras, Juan: Amer. Jour. Trop. Dis. and Prev. Med., 1913, i., 159.
 Hewetson: Brit. Med. Jour., 1922, ii., 885.
 Hintze, K.: Welchen Einfluss hat das Tropenklimate auf Angehörige der weissen Rasse? Archiv für Schiffs- und Tropen-Hygiene, vol. xx., February-March, 1916, 91, 122, and 148.
 Huntington, Ellsworth: Civilisation and Climate. London: 1915.
 Leslie, Charles: A New and Exact Account of Jamaica. Edinburgh, 1739.
 Nugent, Maria: Lady Nugent's Journal: Jamaica 100 Years Ago. Edited by Frank Cundall, 1907.
 Priestley: Brit. Med. Jour., 1922, ii., 233.
 Ruffer, Marc Armand: Studies on the Palæopathology of Egypt. Chicago, 1921.
 Sloane, Hans: A Voyage to the Islands of Madeira, Barbados, and Jamaica, to which is prefixed an Introduction wherein is an account of the Inhabitants, Air, Water, Diseases, Trade, &c., of that Place. 1707-1725.
 Steudel: Beihefte zum Archiv für Schiffs- und Tropen-Hygiene, 1908, xii., 79.
 Tucker, C.: Med. Jour. of Australia, July 9th, 1921, p. 37.
 Wagemann, E.: Deutsche Rundschau, May, 1915.

MANCHESTER HOME FOR INEBRIATES. — The Manchester Watch Committee have agreed to hand over their interest in the Inebriates Institution at Langho to a subcommittee of the Lancashire Asylums Board for the treatment of mental deficients. Since 1915 it has been used to a greater or less extent for this purpose. The institution was built over 20 years ago at a cost of £110,000 and was designed for the reception of inebriates, male and female, but only that portion of it which was intended for women was erected. Women had to be committed by magistrates three times in a year before they could be sent to the home, and only then by their own consent. The third committal was rarely reached, and for some time not a single inebriate has been under treatment there. It would seem that the majority of the patients at the time of their committal to the institution had already passed the period at which reformatory treatment would be of any use. The chairman of the Watch Committee said that the treatment of inebriates at such places appeared unfortunately to be ineffective. On many occasions women leaving Langho have gone and bought themselves a drink. It has proved a failure in public administration.

RESEARCH IN TROPICAL DISEASE.

PUBLIC announcement was made last week that there is in process of organisation the nucleus of an institute, to be called the "Ronald Ross Clinique for Tropical Diseases and Hygiene," as a fitting monument to a great investigator on the twenty-fifth anniversary of his discovery—a discovery which revolutionised medical science and living conditions throughout the tropics. The distinguished signatories to the appeal for this Ross Institute expressly state that the proposal is to supplement and in no way to compete with existing schools of tropical medicine. No doubt instruction in this fruitful and rapidly expanding branch of medicine must necessarily go hand in hand with research—one cannot exist or flourish without the other, and we take this opportunity of indicating some of the directions in which the special schools have proved their value, leaving aside for the moment the work of such foundations as the Lister Institute, the National Institute for Medical Research and others, which take in the tropics in their stride.

I. LONDON SCHOOL OF TROPICAL MEDICINE.

The London School of Tropical Medicine has been in existence for 24 years and starting from small beginnings it has expanded until in 1920 it was transferred from its former and somewhat obscure position in the Albert Dock and installed in Endsleigh-gardens in close association with the Hospital for Tropical Diseases and the Tropical Diseases Bureau. Since the removal three years ago the 56 beds have been filled with examples of interesting and rare diseases from all parts of the British Empire. In association with the hospital itself, a laboratory has been specially fitted up for clinical investigations and clinical research, and the activities of the helminthological, protozoological, and pathological departments of the School testify to the value of the coöperation between the wards, the research laboratories, the lecture theatres, and the bureau from which is issued the *Tropical Diseases Bulletin*.

Among the results of practical importance derived from the association may be mentioned a new theory and treatment of sprue by Dr. H. H. Scott, now a member of the School and himself a former sufferer from this terrible scourge, as also the discovery of Weil's disease in London and the treatment of trypanosomiasis by Bayer "205." The staff of the hospital counts among its numbers a distinguished physician who has been appointed in order to originate and conduct research in clinical medicine. Certain tropical diseases, sprue among them, are probably more profitably investigated in London than in the tropics. It has, however, been fully recognised that the really great advances are to be obtained by special researches in the tropics themselves. This can be done in two ways: by training workers for positions in the laboratories now established in most of the British tropical possessions or by the despatch, from time to time, of special investigators most fitted to conduct an intensive research for a limited length of time on some special problem.

During the last 23 years the School has despatched no less than 21 of these expeditions and, as the publications of the School will show, they have been fruitful in many ways. The researches of C. M. Wenyon in protozoology and R. T. Leiper in helminthic disease are known to all. At the present moment two of the staff are actively engaged in research in the tropics. Dr. J. G. Thomson, for the second time, is investigating blackwater fever in Rhodesia, and Dr. H. B. Newham the prevalence of undiagnosed fevers in British Honduras, while at the end of the present year Dr. P. A. Buxton, accompanied by assistants, is proceeding to Samoa with the coöperation of the New Zealand Government, with the object especially of devising methods for the prevention of filariasis. Dr. Cecil Cook, the recently appointed Wandsworth scholar, will investigate the aetiology of ulcerating granuloma in New Guinea, where this intractable and loathsome disease is rampant.

This active prosecution of research in the tropics has been made possible owing to the endowment by Lord Milner of a magnificent research fund with an income of over £2600 a year. The helminthological department also expends over £1000 a year in special research facilities, and Prof. Leiper has constantly attached to him three or more research students, their activity being reflected in the publication of the bi-monthly periodical the *Journal of Helminthology*. The publications of the School as a whole include the production of the *Journal of the London School of Tropical Medicine* as well as the *Research Memoir* series, of which four volumes have already appeared and others are in course of preparation.

The London School thus provides ample and generous opportunities for laboratory and clinical research, the popularity of which is reflected in the increasing attendance at the post-graduate classes. Still greater opportunities are assured to the School in association with the scheme for an Imperial Institute of Hygiene.

II. LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

The Liverpool School of Tropical Medicine was founded in 1898 by the late Sir Alfred Lewis Jones. The early history of the school is a record of struggle; it was not supported by the Government, as was the London School; it had no grant, no assured income, nor even, until 1900, Government recognition. The teaching staff, of which Ronald Ross was an original member (becoming, in 1903, the first holder of the Alfred Jones Chair of Tropical Medicine), was originally appointed in May, 1899, and it was actually in July of the same year that the first scientific expedition sailed for West Africa. A series of expeditions followed rapidly, and up to the year 1914 the school has despatched 32 expeditions to the tropics. In addition, the services of members of the staff have been requisitioned from time to time for special investigations in the tropics, and as recently as 1921 a member of the staff proceeded to Venezuela to investigate an outbreak of malaria.

The year 1922 marked a new phase in the scientific activity of the school, for in January of that year its research laboratory at Freetown, Sierra Leone, was opened with a director (holding a professorship in the University of Liverpool) and two assistants as a preliminary staff. Thus was realised a long-cherished desire of investigating the diseases of a given locality at their place of origin, the extension of this scheme being limited only by the means at disposal.

As to the scientific work of the school done in its laboratories in Liverpool, the *Annals of Tropical Medicine and Parasitology*, first published by the school in 1907, and now in their seventeenth volume, are maintained largely by contributions from the staff. Notable among many advances in tropical medicine promoted by the staff of this school are the researches into blackwater fever by Wakelin Barratt and Warrington Yorke, into yellow fever by Wolferstan Thomas and Rubert Boyce, and into trypanosomiasis by J. E. Dutton, J. L. Todd, and C. Christy. From Prof. B. Blacklock, working at the recently established laboratory in Sierra Leone, has already emerged the discovery of a malarial parasite in the chimpanzee, identical in morphology with the human parasite *P. falciparum*, and some evidence that blackwater fever is not due to a specific parasite. The school has investigated and is at the present time investigating several of the scientific problems that have arisen in the city and port of Liverpool—i.e., the house-fly pest, the existence of plague-fleas on ship rats, the presence of mosquitoes in incoming vessels, the destruction of bed-bugs and rats on ships. The speciological work by members of the staff, on its collection of parasites from all over the world, is another aspect of the school's activity.

Further details, indicating the nature of the work and the wide field which it has encompassed, are set out in the *Historical Record* and the *Scientific Record* of the school, published in 1920 at the University Press, Liverpool.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The New Medico-Legal Institute of the University of Paris.

A NEW Medico-Legal Institute has recently been inaugurated in Paris, the Department of the Seine and the University of Paris having voted considerable sums towards its erection. The Institute will replace the old Morgue which stood at the Quai de l'Archevêché till this year, and has long been the object of morbid curiosity. The Morgue consisted of a gallery to which the public were allowed access, where dead bodies were exposed for identification purposes. Since 1913 this public exhibition of bodies has been suppressed, but the building which remained had a gloomy aspect and spoilt one of the prettiest corners of Paris. It has now been demolished, and will be replaced by a garden which will pass along the banks of the Seine behind the apse of Notre-Dame Cathedral. The new Medico-Legal Institute is built near the Pont d'Austerlitz. The ground floor consists of a large gallery giving access to an amphitheatre big enough to seat 200, fitted with modern equipment, including arrangements for showing films and technical apparatus. The laboratory of forensic medicine is also well equipped, arrangements for work in vacuo and for the production of compressed air being provided. The rest of the ground floor is taken up by the private laboratory of the professor, the museum, library, and a large teaching laboratory, along the bank of the Seine, where many students can be accommodated. In the basement are photographic dark-rooms and rooms for experimental animals. On the side of the building connected with the University of Paris are well-arranged administrative departments, a record office, and a hall for identification of corpses placed just under the galleries of the basement. Here cadavers are to be kept in separate cases at a low temperature. Special accommodation has been reserved for the officials concerned with identification, for photographing the cadavers. This well-equipped Institute does credit to the University of Paris and to the Department of the Seine.

Medical Examination of Motor-drivers.

In view of the number of motor accidents, the Commission d'Hygiène of the Chamber has just decided on the necessity for imposing a medical examination on all candidates for a licence as motor-car drivers. This measure is approved by the Association Générale Automobile de France, and the Academy of Medicine is also strongly in favour of its provisions. No chauffeur will be excused from examination, whether he be the driver of a taxi, private car, lorry, or omnibus, whether he be an owner-driver or an employee. The proposal is to require a medical certificate attesting that the candidate has good general health, normal vision, or, if the vision is abnormal (myopic or hypermetropic), the visual acuity after correction by glasses must be 8/10. Moreover, the commission consider that it will be necessary to refuse a driver's licence to all alcoholics, because, whether they are actually suffering from the effects of a drinking bout or not, intemperate habits in the long run will render them incapable of retaining that self-control, presence of mind, and precision in manipulation which are indispensable in a good chauffeur.

Diminution of the French Birth-rate.

Detailed statistics of French population during 1922 have recently been officially published. If the records of the last three years are compared it will be found that while the excess of births over deaths amounted to 159,790 in 1920 and 117,023 in 1921, the margin is reduced to 70,579 in 1922. Marriages per 10,000 inhabitants were 195 in 1922, compared with 233 in 1921 and 318 in 1920. The birth-rate per 10,000 inhabitants was 194 in 1922, against 207

in 1921 and 213 in 1920. The mortality per 10,000 was 176 in 1922, against 177 in 1921, and 172 in 1920. In short, there was in 1922 a diminution of marriages and of births which is not compensated for by the very slight reduction in mortality rate.

June 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Royal College of Surgeons in Ireland: Dinner to Dr. William Mayo.

ON June 25th a dinner was held at the Royal College of Surgeons in Ireland in honour of the visit to Dublin of Dr. William Mayo, of Rochester, Minn. Upon the same occasion the Honorary Fellowship of the College was conferred upon Sir Harold Stiles, Regius Professor of Clinical Surgery, Edinburgh University. Sir William Wheeler, President of the Royal College, presided. The parchment signifying that Sir Harold Stiles's name had been placed on the roll of honorary Fellows was handed to him by Mr. T. M. Healy, Governor-General of the Irish Free State.

In proposing the toast of the Governor-General and prosperity to Ireland, the President referred to the College as an institution which knew nothing of politics or sectarian strife. This impartiality, he said, had been reciprocated in the course of the past few years; the College buildings had been occupied or besieged at different times by three separate military forces hostile to one another. Many of those present, he continued, had had, in the capacity of medical witnesses, experience of the deadly accuracy of Mr. Healy's methods in the course of his legal work. He was now engaged in the work of a physician and surgeon, reconciling difficulties, and healing and preventing contention.

Later, in giving the toast of the honorary Fellows, coupled with the names of Dr. William Mayo and Sir Harold Stiles, Sir William Wheeler referred to the latter as honoured guests who, through their writings and through the tongues of patients, disciples, and followers, were daily friends of the entire community. He also referred to a visit paid by himself to Rochester; in the year previous to that visit 68,000 patients from all over the globe had sought the advice and help of Dr. Mayo and his 200 assistants. After emphasising the regard felt by the College towards Sir Harold Stiles and the wide interest in his work which was apparent throughout Europe and America, the President spoke of the general practitioner and his position in the medical world as follows: "I allude to the subject, first, because it is near to the hearts of both Dr. Mayo and Sir Harold Stiles, and secondly, because I want to tell them before they leave us that the general practitioner in Ireland has lived up to the high reputation which they have given to him. The general practitioners in this country have carried out their duties under conditions which would almost make those trained in the profession of arms shrink and retreat. It was no light matter to travel over roads strewn with mines and explosives at the dead of night. It was not a joy-ride to go through ambushes and trenches, of necessity by forbidden routes, to be mistaken for combatants and fired upon by friends and foes. Some fell wounded, some were killed, others escaped with their cars blown up and destroyed; but there was never an instance of refusal to attend a patient, especially a poor patient, under any circumstances whatever when the summons was received. The general practitioner in Ireland will hold an honoured place when the dreadful times through which this country has passed have been chronicled by the future historian."

The President concluded his remarks with a reference to the respect felt in Ireland for American surgeons—of whom, he said, many of the greatest bore Irish names—and to the close union between the American surgeons and the surgeons of Britain and Ireland during the war. Dr. Mayo and Sir H. Stiles briefly responded.

Irish Medical Committee.

A meeting of the Irish Medical Committee—which has not met for some years—was held on June 20th, when Dr. Joseph Power, vice-chairman, presided. Dr. R. J. Johnstone, M.P., wrote tendering his resignation of the office of chairman, but the Committee unanimously asked him to reconsider the matter. In reply to a letter from the Irish Insurance Commission inviting the Irish Medical Committee to nominate three medical practitioners to act on an Advisory Committee to the Insurance Commission (Free State), Drs. Rowlette, O'Sullivan, and Hennessy were selected. The Insurance Commission (Free State) forwarded a draft of the proposed report with regard to (1) investigation of complaints against medical certifiers; (2) the appointment of a complaints committee to investigate, in the first instance, charges made against medical certifiers, &c. After the report had been considered in detail, it was resolved:—

1. That the Irish Medical Committee is of opinion that the present arrangement whereby complaints against medical certifiers are submitted to local medical committees should be continued, and that only such cases where the local committees failed, within a reasonable time, to take action should be submitted to the proposed complaints committee.
2. That there may be allowed to either party an appeal from the decision of the local medical committee to the complaints committee.

A long discussion took place with regard to the position of the Irish Medical Services. It was resolved:

That an executive subcommittee be appointed, and that it should act as a deputation to wait on the Minister for Local Government and urge upon him (1) the necessity for the establishment of a Ministry of Health for Ireland and a National Medical Service on the lines recommended by the Irish Public Health Council; (2) pending legislation, that the deputation urge on the Minister the grievances of medical officials in regard to salaries, holidays, pensions, &c.

The Medical Secretary was directed to continue his representations to the Ministry of Local Government in connexion with the refusal of that department to sanction increases for medical officers passed by local authorities. The Committee expressed the opinion that the carrying of Red Cross badges on the motor-cars of medical men should cease with the return of normal conditions in the country. A resolution was also passed to the effect that motor-cars engaged in work under the Medical Charities Acts should be exempt from taxation, and that the tax paid on motor-cars of doctors engaged in other practice should be on the pre-war basis of allowances.

Royal Medical Benevolent Fund of Ireland.

Dr. Michael Cox, President of the Royal College of Physicians, presided at the annual meeting of the Royal Medical Benevolent Fund Society at the Royal College of Physicians, Dublin, on June 20th. The annual report states that the number of applications received during the year was 84. The amount given in grants was £1695 10s., as compared with £1215 11s. in the preceding year. Dividends and interest showed an increase of £67. Revenue from all sources, including donations, reached £3549 14s. 7d. The Central Committee states that the society is purely Irish, administered by Irish medical men for the benefit of the widows and orphans of Irish medical men who have practised in the country. The bank balance at the moment is only £888 12s. 1d., and merely to continue the work next year £1200 must be raised, or the relief must stop. The Committee appeal most earnestly to their non-subscribing colleagues throughout Ireland to consider the claims that this charity has upon them. There are over 3000 doctors in Ireland, and 10s. from each would place the society on a sound financial basis.

Queen's University of Belfast.

Dr. W. W. D. Thomson has been appointed Professor of Medicine in succession to Prof. J. A. Lindsay, who retires under the age rule. Mr. Andrew Fullerton has been appointed Professor of Surgery in succession to Prof. Thomas Sinclair, who also retires under the age rule. Mr. P. T. Crymble has been appointed lecturer in operative surgery and applied anatomy.

Correspondence.

"Audi alteram partem."

DELAY IN GIVING DIPHTHERIA ANTITOXIN.

To the Editor of THE LANCET.

SIR,—I can only infer from a perusal of Dr. H. J. Cardale's letter in your issue of June 16th that he is under the impression that in my communication of the previous week I advocated the administration of antitoxin by the general practitioner as preferable to prompt removal of the patient to hospital. I am afraid I must have expressed myself very badly if my letter conveyed that impression. Prompt removal of the case to hospital completely satisfies the requirements of the situation, since it ensures the patient getting antitoxin quickly, and ipso facto, does away with the need for the practitioner giving it. The main purport of my letter was to ensure that a patient suspected of having diphtheria should receive antitoxin early in the attack rather than be subject to the delay incidental to waiting for the bacteriologist's report. Whether the serum be administered by the practitioner at home or after prompt removal to hospital is of little moment, provided it is given early.

It is under conditions where delay in removal to hospital is likely to be encountered, such as defective ambulance arrangements, objection by the friends to the patient being sent away to hospital, or hesitancy on the part of the medical attendant to certify for removal until his diagnosis is confirmed, that I urge the desirability of his giving antitoxin. That the family doctor may have certain difficulties to contend with in giving antitoxin, as stated by Dr. Cardale, I readily admit, though some of them, I think, are overstated. Delay in procuring antitoxin certainly exists in certain areas, especially on Saturday afternoons and Sundays, owing to defective organisation. Objection raised by parents to the use of serum would hardly be expected to be more frequent than objection to their child's removal to hospital, and the arguments employed by Dr. Cardale to overcome their opposition to removal might be expected to be equally successful in overcoming their prejudice against the use of serum.

As regards the risk of anaphylaxis, I quite agree as to the need for caution in the case of persons who have been treated with antitoxin previously, and also with asthmatics, and should the history of the patient be suggestive of such being the case, it is always well to test his susceptibility to anaphylaxis by the intramuscular injection of 5 to 10 minims of serum before giving the full dose. I am convinced, however, that the risk of anaphylaxis in the case of patients who have not received antitoxin before is greatly exaggerated, and that it may be regarded as practically negligible when regard is had to the risk incidental to withholding its administration. In the course of 28 years' experience of the use of antitoxin in diphtheria, during which many thousand cases have been treated, I have only once met with a case of anaphylaxis which gave me any real anxiety, and the patient recovered in this instance.

Dr. Cardale's statement that the majority of advanced cases that are sent into hospital are in an advanced stage of the disease when the doctor first sees them, is not in accord with the experience of the medical officers of the fever hospitals, in London at any rate. Too often one hears from the friends that patients have been under treatment at home for periods of two to four days, or even more, before being sent into hospital, where they received their first dose of antitoxin. Under these circumstances I am not likely to criticise Dr. Cardale's statement "that a few doctors do delay until the diagnosis is assured is probable," except that I would substitute the words "a good many" for "a few," and "fairly certain" for "probable." To what extent the Asylums Board

were themselves to blame for this, owing to their practice of causing information to be sent to the certifying practitioner whenever the case proved not to be diphtheria, it is difficult to say, since the attitude of different doctors was found to vary a good deal in respect to the receipt of this notice. Some were glad to receive the information, others resented it, as Dr. Cardale implies. The difficulty, however, no longer exists, since the Board's Infectious Hospitals Committee decided last year, on the advice of the medical superintendents, to discontinue the practice lest it should have the effect to which Dr. Cardale draws attention.—I am, Sir, yours faithfully,

F. FOORD CAIGER.

South-Western Hospital, Stockwell, S.W.,
June 18th, 1923.

APPARATUS FOR HYDROCYANIC FUMIGATION.

To the Editor of THE LANCET.

SIR,—Your annotation with this title prompts me to write a line of warning; in doing so I have no wish to detract from the value of the apparatus as an efficient mechanism for its purpose. I would, however, urge most forcibly that there is one clear line along which to seek immunity from accidents in the fumigation of ships by prussic acid; that line is the efficient protection of the men from any concentration of gas, however great and however produced. Efficient protection resolves itself into an efficient protective apparatus, kept in perfect order, and efficient drill punctiliously carried out. A fraction of a minute's indulgence in the contempt for prussic acid gas bred of familiarity may be fatal; and it should be borne in mind that this gas, in high concentration, rapidly deadens the sense of smell, so that a man may easily be deceived as to the lethal nature of the atmosphere which he is breathing. Given efficient protection there is no danger, nor is there any reason why this method of fumigating ships with prussic acid should not be that in universal use.

I am, Sir, yours faithfully.

Cambridge, June 20th, 1923.

JOSEPH BARCROFT.

THE PROPHYLACTIC TREATMENT OF PUERPERAL SEPSIS.

To the Editor of THE LANCET.

SIR,—The precautions suggested by Lady Barrett in your last issue are impracticable in a workaday world. Some are a counsel of perfection quite unattainable in general practice, some are wrong in principle, some are founded on false assumptions. Puerperal sepsis is now rarely due to the introduction of pathogenic germs by the hands of the doctor or midwife. It is almost always secondary to some membrane being left behind in the uterus. This is often due to hastening the third stage, but not always. I make it a rule never to be in any doubt that the uterus is empty. If I am not perfectly sure, I do not hesitate to introduce the hand, surgically clean but ungloved, into the uterus. My lubricant is always soap. It has been boiled and a fresh clean surface is constantly formed during washing. It is therefore much safer than vaseline. I have never known any harm result from the introduction of the hand in this way, and have often known serious harm result from its omission. Lady Barrett greatly exaggerates the danger of manual removal. The real danger is uncertainty as to whether the uterus is empty.

The danger of oral sepsis causing puerperal infection is purely theoretical. But the danger of dental extraction during pregnancy is no "superstition," as any experienced practitioner can testify. I can recall cases of miscarriage from this cause, as indeed, who cannot? I often work with a trained midwife; our district nursing home has midwives available who work with the doctors. It is a great saving of time and removes the temptation of putting on forceps to enable the doctor to get back to his surgery.

But it is surely wrong to suggest that "an anaesthetist should be available for the whole of the second stage." Chloroform is by far the commonest cause of post-partum hæmorrhage and is often responsible for the death of the child. Many still-born deliveries are cases of chloroform poisoning. No anaesthetic should be given unless absolutely necessary, and then it should be ether, not chloroform.

It is not necessary to shave the vulva. Soap and water and perchloride solution are all that is necessary; moreover, perchloride is a far safer disinfectant than lysol or its equivalents. We cannot too persistently proclaim that parturition is a natural process and the less it is interfered with the less likely there is to be trouble. The principal function of the obstetrician should be to watch and pray! He should first make absolutely certain that there is nothing wrong, and then leave well alone. When we read the list of instruments which must be put ready it is evident that Lady Barrett expects trouble. I have forceps, a large curved needle, a needle-holder, and some silk-worm gut in my bag—and I generally leave them there.

I am, Sir, yours faithfully,

E. VIPONT BROWN, M.D. Lond.

Longsight, Manchester, June 23rd, 1923.

MODERN TECHNIQUE IN TREATMENT:

ARTICLE NO. XXV.

To the Editor of THE LANCET.

SIR,—Are these articles supposed to be practical? If so, why does the author of No. XXV. describe the technique which is only possible to be carried out in a hospital, nursing home, or good-class house? Lady Barrett appears to forget the fact that the majority of births take place in poor homes, in bedrooms in some of which I should not care to keep a dog. The mothers have never had what you may call a bath during the whole course of their existence, the bed, bedclothes, and mattress are filthy and the atmosphere of the rooms horrid. I wonder that the writer did not tell us that the bedroom should be stripped and re-papered, the bed and paint carbolised, the mattress and bedclothes stoved, the room well-ventilated and kept unoccupied until labour commences, that the mother should have a hot bath every night, and so on and so forth. Lady Barrett might also tell us the cost of a drum of sterilized dressings such as she describes, and what would be a reasonable fee for doctor and nurse to charge Mrs. Smith, who has five children, lives in two rooms, and whose husband is getting £2 a week from the "Labour."

I am, Sir, yours faithfully,

Walsall, June 24th, 1923.

JOHN G. COOKE.

THE COUNTY PATHOLOGIST

To the Editor of THE LANCET.

"We sincerely hope that any workable scheme to provide better facilities for pathological investigations in county districts will not be turned down without serious consideration."—THE LANCET, June 23rd, p. 1278.

SIR,—The last three words in your recent annotation meet the case of the county voluntary hospitals: the first difficulty to get over is to find time to seriously consider the necessity of a pathologist for the sake of the patient, and as an education for his medical attendant. Country practitioners drop into the habit of doing without—a danger to our personal work, a danger to our scientific progress, a danger of converting our great profession into a trade of pounds, shillings, and pence. A ten minutes' interview with a pathologist would often give us a different view of our patient. May I give an instance? A young man, aged 20, has a large spleen occupying two-thirds of his abdomen; a "board" calls his disease malaria; he had never served out of the country; the pathologist reports Wassermann ++ i.e. an undoubted case of congenital syphilis. A splenectomy was not done, medical treatment sufficed.

The scheme I ventured to present to representatives from the Dorset Voluntary Hospitals wanted only the determination of the profession that it must be. Two or three shillings per patient would just give the necessary honorarium, and the enormous progress in medicine and surgery requires expert confirmation of clinical observation. The greater hospitals are "out at elbow," the lesser hospitals are financially sound; both must pull the same boat if the voluntary system is to continue.

I am, Sir, yours faithfully,

W. B. COSENS.

Senior Hon. Surgeon, Dorset County Hospital.
June 25th, 1923.

DURATION OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—In his address on the Duration of Pregnancy in its Medico-legal Aspects, which appeared in THE LANCET of June 16th, Dr. T. W. Eden quoted some salient points from the case of prolonged gestation which I read before the Obstetrical Section of the Royal Society of Medicine in October, 1921. Two points were omitted by Dr. Eden: first, the patient was examined twice, on Nov. 20th and on Dec. 18th, 1917—that is, 27 and 31 weeks after the husband's visit, and the uterine size each time corresponded with the pregnancy history. If the pregnancy began early in July, these dates would correspond to 20 and 24 weeks. Foetal movements were noticed in December at the second examination. On March 19th the uterus had reached its full size. The second point refers to war-time morality: the husband had been away for four years, three of them war years, and, further, the last pregnancy was 18 years ago. I do not think that prolonged gestation can be negatived in this case, as Dr. Eden considers, purely on the question of the size of the baby.

I am, Sir, yours faithfully,

ROBT. A. HENDRY.

Department of Obstetrics and Gynaecology, University of Liverpool, June 23rd, 1923.

To the Editor of THE LANCET.

SIR,—With reference to Dr. T. W. Eden's paper on the Duration of Pregnancy in its Medico-Legal Aspect in your issue of June 16th, the following case appears to be worthy of notice:—

A. B., aged 42, whose last menstrual period occurred on Dec. 27th, 1896, was delivered on the night of Nov. 30th–Dec. 1st, 1897. The child, after craniotomy, washing out the brain, and removal of the liver and abdominal contents, weighed 14½ lb. It was necessary to remove the abdominal contents in order to get at the aftercoming head, which could not be induced to pass the brim. The duration of the pregnancy from the last menstrual period was 338 days.

The size of the child was, I think, almost a record; it was the physical equivalent of a child of 5 months old.

I am, Sir, yours faithfully,

WALTER C. SWAYNE.

Clifton, Bristol, June 23rd, 1923.

NURSES' REGISTRATION.

To the Editor of THE LANCET.

SIR,—In your Parliamentary Intelligence (June 23rd, p. 1293) you refer to the debate in the House of Commons on the Rules for the Registration of Existing Nurses under the Nurses' Registration Act, 1919, during which Dr. Chapple moved the amendment of the suggested Rule 9, 1, (g). My Council much regret that Dr. Chapple's speech in moving the amendment should have been so phrased as to convey to Members of Parliament the impression that his amendment was in accordance with the policy advocated by the College of Nursing. I am directed by the College Council to make it clear that the College is entirely opposed to Dr. Chapple's suggestions, the position being as follows: At the request of its members the Council of the College approached the

General Nursing Council in the letter quoted by Dr. Chapple, asking that the door of admission should be opened wider to the bona fide practising nurse, following which the General Nursing Council framed Rule 9, 1, (g), which admitted on their individual merits nurses in practice before 1900 and in 1919, and this Rule was entirely approved by the College Council as meeting the case of the older practising nurse. This approval was made clear in a typewritten statement, which was put into the hands of the medical Members of Parliament, including Dr. Chapple, on May 8th. It will be seen, therefore, that the College supports the Rule framed by the General Nursing Council, and strongly disagrees with the conditions laid down by Dr. Chapple for the admission of nurses to the Register.

I am, Sir, yours faithfully,

M. S. RUNDLE.

Secretary, College of Nursing, Ltd.

7, Henrietta-street, Cavendish-square, London, W. 1,
June 23rd, 1923.

THE FIRST "MENTAL HOSPITAL."

To the Editor of THE LANCET.

SIR,—During the Committee stage of the new Mental Treatment Bill in the House of Lords on May 30th the Earl of Onslow moved after Clause 8 to insert the following new clause:—

"Asylums provided by any public authority in England or Wales for lunatics or other persons of unsound mind shall hereafter be called mental hospitals and accordingly for references in any public or local Act or in any Order, regulations, or other document issued under any such Act to any such asylum shall be substituted references to mental hospitals."

Lord Onslow added that hitherto mental institutions had been described as asylums, and the word "asylum" had been associated with mental deficiency, and perhaps had contributed to the view that it was less a disease than an irremediable affliction. Nurses in mental institutions, alienists, and the Board of Control were, he said, all anxious that this change of name should be adopted. The amendment was agreed to.

This substitution of the word "mental hospital" for the word "lunatic asylum," which connotes both the moral evolution of the idea of treatment of the insane and the development of the machinery for their treatment, first occurred when the present mental hospital at Upper Warlingham was opened in 1903 under the aegis of the Croydon County Council, the first report being published in the following year during the mayoralty of Alderman C. C. Morland, J.P. Up to this time all public places for the reception of the insane in this country were called either "asylums" or "retreats," or the term applied was merely "hospital" without qualification, which made confusion with the general hospital for the treatment of the ordinary sick. This mental hospital, when it opened, was furnished with X ray rooms, pathological laboratory, operating theatre, and every modern appliance to abolish the old idea of asylum. Other institutions followed suit. The City of Cardiff, which opened a new asylum in 1904, called it the "Cardiff City Mental Hospital," and the third institution re-named was the City of London Asylum at Stone in 1905. In 1918 the London County Council rechristened their asylums "mental hospitals." Since then practically all the county and county boroughs in the country have re-named their asylums "mental hospitals."

To establish the priority of Warlingham I may quote from an account of the opening which appeared in the *Municipal Journal* of July 3rd, 1903:—

"With the advent of Pinel in France, and William Tuke of the York 'Retreat,' which still looks proudly down from the hill on Heslington Road, the last decade of the eighteenth century saw the restraint and ostracism giving place to humility, liberty, and recognition. In this direction the memories of Dr. Gardiner Hill, of the Lincoln Hospital, and Dr. Conolly, physician, of Hanwell, now one of the asylums of the County of London, will ever live. It was a happy idea to call this new institution at Warlingham, which

is replete with every up-to-date apparatus, a 'mental hospital.' There is some little mystery as to how it became so cognomened. The nomenclature, we believe, is really the copyright of the Medical Superintendent, who was adviser to the Council a year before it opened, and who is a progressive of the true type."

In the twentieth report of the hospital just published, the average recovery rate during the last ten years is given as 42 per cent., so that the purpose for which the hospital was opened is being fulfilled. The change of name means everything to the public, and more so to those who seek and need treatment therein. Coming generations will then grow up to call these institutions mental hospitals, or hospitals for the treatment of mental diseases, and never have the fear of them that their forefathers had.

I am, Sir, yours faithfully,

E. S. PASMORE, M.D. Lond.,
Medical Superintendent from the Foundation.
Croydon Mental Hospital, Upper Warlingham,
Surrey, June 24th, 1923.

THE RÔLE OF THE TOOTH-BRUSH.

To the Editor of THE LANCET.

SIR,—I agree with Sir John O'Connor in his tirade against the scrubbing of teeth with bristles. Until a year ago I used a tooth-brush twice a day and silk at nights. Since then I have discarded tooth-brushes in favour of careful friction with a lump of cotton-wool plus silk at nights and copious rinsing with plain water. My remaining 16 teeth have never before been so white or so comfortable, nor my gums so free from tenderness. If we could bring ourselves to "scrap the lot" of tooth-brushes in favour of cotton-wool, we should at least avoid many formidable evils due to them. I am not a dental surgeon, but only a

June 21st, 1923.

SEPTUAGENARIAN M.D.

Obituary.

WALTER D'ESTE EMERY, M.D., B.Sc.,
M.R.C.P. LOND.

Dr. Walter d'Este Emery died at the Red Cross Hospital, Brighton, on June 19th, at the early age of 53 years. Educated at Queen's University, Birmingham, and at St. Bartholomew's Hospital, he had a brilliant career as a student, graduating B.Sc. Lond. with first-class honours in physiology in 1892 before qualifying M.R.C.S., L.R.C.P. in 1894. He won the gold medal in medicine and obstetric medicine when taking the M.B. Lond. in 1896, together with a scholarship. A year later he proceeded to the M.D. degree, when he qualified for the gold medal, and became M.R.C.P. in 1918. His early appointments included those of house physician and ophthalmic and obstetric house surgeon at the Queen's Hospital, Birmingham, and assistant surgeon to the Birmingham Skin and Urinary Hospital, and in London that of assistant bacteriologist to the Royal Colleges of Physicians and Surgeons. Later he was appointed lecturer on pathology and bacteriology in the University of Birmingham, and in 1911 Hunterian Professor at the Royal College of Surgeons of England. Dr. d'Este Emery had also held the appointments of pathologist to the Paddington Green Children's Hospital, lecturer in general pathology at the London School of Medicine for Women, and director of laboratories and lecturer on pathology and bacteriology at King's College Hospital. He was the author of many scientific papers, and of books on "Immunity and Specific Therapy," "Clinical Bacteriology and Hæmatology," and "Bacteriological Diagnosis for Practitioners," which are well known, and his views on the Formation of Tumours: their Nature and Causation are well set out in a book on this subject. He also contributed articles to Cheyne and Burghard's "Manual of Surgical Treatment" and Rose and Carless's "Surgery."

With the death of Dr. d'Este Emery, the staff of King's College Hospital have lost a much valued friend

and guide in pathology. One of the earliest to take up clinical pathology as his main interest in life, Emery showed immediately after his appointment an originality in research and a keen critical judgment that made his room a rendezvous for the younger members of the staff, and although it must have added greatly to the burden of his work, he always showed a ready interest in discussing the various problems arising in the diagnosis and treatment of the hospital patients. His chief interests lay rather on the side of bacteriology and immunology, and his book on "Immunity and Specific Therapy" was one of the best and clearest expositions of the subject that could be placed in the hands of the clinician. He was also keenly interested in the problem of cancer and a strong supporter of the parasitic theory; his small work setting out the arguments in its favour is a model of cogent reasoning. At the hospital he was always engaged in strenuous work from a very early period after his appointment, and it is really astonishing that he should have found time and energy to write three volumes each requiring an immense amount of reading and thought. No doubt this constant activity was not without its effect on his health and may well have contributed to his untimely crippling and death. On the outbreak of war he took a commission in the R.A.M.C.(T.), with the result that his already excessive work was vastly increased, and it was quite obvious to his friends that this was acting very deleteriously on his never very robust physique. Nevertheless, he carried on with the utmost courage and at one time added to his burden by acting as director of the venereal department. In his later years at King's College Hospital he was tortured by constant headache and frequent insomnia, and finally the first breakdown came and precluded any further activity for some months. This was followed by a comparatively short return to his duties and then by unavoidable retirement from active life.

As a bacteriologist and serologist he was notable both for the accuracy of his results and for the well-balanced opinion that he always placed at the service of the staff. In morbid anatomy he was not so highly trained at the date of his appointment, but his keen interest and his desire to master every branch of his comprehensive subject led him to discuss all his most difficult problems with any colleague who had had special experience in morbid anatomy. He was thus in the later years of his activity able to give a first-class opinion on the microscopical appearances of diseased tissue. It was unfortunate that almost throughout the period of his appointment he was overburdened with routine work. With more leisure he might have been responsible for even more valuable research work, for he possessed a fine original mind and a great power of correctly judging the value of evidence. His ideals were high and he will long be remembered as a teacher, colleague, and eager worker.

THE LATE DR. D. EDWARDS OF CEMMAES.—Dr. David Edwards, who died recently, was one of the oldest medical practitioners in Montgomeryshire. He graduated in medicine and surgery at the University of Edinburgh in the year 1879, and for a time acted as a locum tenens at Llanrhaiadr, near Oswestry, before settling at Cemmaes Road, where he was in practice up to the time of his death. He was a justice of the peace for the county of Montgomery, medical officer for the Llanbrynmair and Cemmaes districts of the Machynlleth Union, and coroner for the Machynlleth district.

SMALL-POX IN ENGLAND AND WALES.—During the week ending June 16th, 79 cases of small-pox were notified in England and Wales, the distribution being as follows: Derbyshire, 1 (Heanor); Essex, 2 (West Ham); Gloucestershire, 58 (Gloucester 52, Gloucester R.D. 3, Stroud R.D. 1, Wheatenhurst R.D. 2); Nottinghamshire, 5 (Stapleford R.D.); Yorks North Riding, 1 (Thornaby-on-Tees); Yorks West Riding, 11 (Bentley-with-Arksey 5, Doncaster, 2; Doncaster R.D. 4); Monmouthshire, 1 (Risca). Groups of cases have since been reported from Warsop (Notts) and the Rhondda Valley, and scattered cases elsewhere. No deaths are reported.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At the Third Examination for Medical and Surgical Degrees held recently the following candidates were successful:—

Part I., Surgery, Midwifery, and Gynecology.—J. C. Ainsworth Davis, P. E. Bardsley, B. Broadbent, G. M. Brown, J. T. Burrell, N. E. Chadwick, W. E. F. Davidson, G. S. W. Evans, M. W. H. Evans, L. S. Fry, T. S. Goodwin, C. J. P. Grosvenor, H. E. Harris, G. T. Henderson, E. G. Holmes, J. W. W. Jepps, A. H. Johns, M. E. Kennedy, L. P. Lockhart, C. A. Lupton, R. J. Lythgoe, G. C. Millis, A. C. Mowle, E. B. Murrell, L. R. W. Price, R. J. V. Pulvertaft, J. Russell, C. E. G. Smith, R. W. Smith, J. D. M. Stewart, J. H. G. Thompson, E. R. Weaver-Adams, M. H. Webb-Peploe, R. Whillis, L. E. H. Whitby, and R. N. P. Wilson.

Part II., Medicine, Pathology, and Pharmacology.—B. Broadbent, E. B. Brooke, G. H. Caiger, D. H. Cole, G. K. Cooper, E. J. Crisp, W. E. F. Davidson, W. Edwards, L. E. Frazer, L. B. Hartley, M. E. Kennedy, L. Lawn, S. Orchard, A. V. Pegge, L. R. W. Price, J. Russell, J. M. Scott, A. G. Story, C. Starton, E. Tagoe, C. G. Taylor, G. D. Thomson, A. S. H. Walford, L. E. H. Whitby, and R. N. P. Wilson.

UNIVERSITY OF DURHAM.—At the Third Examination for the Degrees of Bachelor of Medicine and Bachelor of Surgery the following candidates were successful:—

Materia Medica, Pharmacology and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology.—Charles W. Arnot, Drummond R. F. Bertram, Frank H. Blackburn, Abraham Brodie, John Brown, Alfred Charlton, Nora E. Colman, Norman Davidson, James W. Dickinson, Douglas Ewart, John R. Garson, Alan Gray, Eric V. Griffiths (second-class honours), John T. Holliday, Austen H. Holmes, Sinclair Hughson, Marjory G. T. Jacka, Maurice H. Jones, Bernard Kaplansky, Harold Levy, Fenwick Lishman, Donald W. McLaren, Richard A. Pallister, Ethel G. Potts, Arthur Purvis, Charlotte B. Schofield (second-class honours), Stuart C. Stonier, Walter Toward, Charles C. Ungley (second-class honours), William S. Walton, Reginald Wear, and James Y. Woodhouse.

UNIVERSITY OF BRISTOL.—At examinations recently held the following candidates were successful:—

FINAL EXAMINATION FOR DEGREES OF M.B., CH.B.
Part II., (completing examination).—Francis H. Bodman (second-class honours), Constance L. Griffiths (second-class honours), Dorothy Stanley, and Idris Williams.

Part I., (including Forensic Medicine and Toxicology).—Ernest R. Clutterbuck, Edward B. Eadie, John A. James, Frederick G. Jenkins, Frank Langford, George S. Mundy, and Arthur S. Prowse.

Part I., only.—Robert H. Dummett, and Kenneth F. Platt.
Forensic Medicine and Toxicology only.—Helen M. Dixon.

FINAL EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

Vincent E. N. Allen, Horace N. V. Barnes, Stuart H. Bedford, Alan S. C. Boulter, Maurice P. Browning, Arthur H. Butcher, Robert G. Butterworth, Hugh P. Evans, George Holt, Arthur R. Hutchings, Cledwyn Lewis, Frederick C. G. Lewis, John C. W. Lewis, Reginald C. Price, James F. Rigg, John S. Roberts, William H. Simpkins, Charles E. Smith, Edgar K. Tratman, Kathleen M. Watson, and Frederick C. Winter.

UNIVERSITY OF GLASGOW.—At the graduation ceremony on June 21st the following degrees were conferred:—

M.D.—Grace H. Anderson (honours), J. B. D. Galbraith (high commendation), B. S. Nicholson (high commendation), Lydia I. H. Torrance (commendation), C. Averill, A. D. Blakely, L. L. Fyfe, A. Macphail, J. M. Melvin, and G. W. Ronaldson.

D.Sc.—Muriel Robertson.

LL.D. (Hon.)—Sir Walter Morley Fletcher, Prof. Graham Lusk, and Dr. Andrew Maitland Ramsay.

UNIVERSITY OF MANCHESTER.—The Council on June 20th appointed Dr. H. S. Raper as Brackenbury Professor of Physiology and Director of the Physiological Laboratories from September next. Dr. Raper is at present professor of physiology and biochemistry in the University of Leeds. He was elected Ackroyd scholar in Yorkshire College in 1902 and was University Scholar in the Victoria University in 1903. From 1904-07 he held an 1851 Exhibition Scholarship. After a year as a demonstrator in physiology at Leeds he was appointed lecturer in pathological chemistry in the University of Toronto in 1910, remaining there until his return to Leeds in 1913 as lecturer in physiological chemistry. He was appointed to his present post in 1917. During the war Dr. Raper was engaged in research work on protection against poison-gas, and from 1918 was head of the Anti-gas Department, with control of the factories in which respirators were made. He is at present retained by the War Office in an advisory capacity on physiological questions arising in connexion with chemical warfare.

Mr. T. M. Bride has been appointed Clinical Lecturer in Ophthalmology, and Mr. David Stewart Assistant Lecturer in Anatomy. Mr. G. V. Ashcroft and Miss E. R. A. Cooper have been appointed Demonstrators in Anatomy, and Mr. W. H. Wood Tutor and Secretary to the Faculty of Medicine.

UNIVERSITY OF LONDON.—At a meeting of the Senate, held on June 20th, Mr. H. J. Waring was re-elected Vice-Chancellor for the year 1923-24. Prof. Frederick Wood Jones was appointed from Sept. 1st next to the University Chair of Anatomy tenable at St. Bartholomew's Hospital Medical College. He has been demonstrator in anatomy at the London Hospital, senior demonstrator and lecturer in anatomy at Manchester, senior demonstrator in anatomy at St. Thomas's Hospital, and head of the department of anatomy at the London School of Medicine for Women, in respect of which post the Senate conferred on him, in 1914, the title of professor. Since 1919 he has been professor of anatomy in the University of Adelaide. He is the author of "Arboreal Man," "The Principles of Anatomy as Seen in the Hand," and numerous other publications.

Dr. R. J. S. McDowall was appointed from August 1st next to the University Chair of Physiology tenable at King's College. During the war he served in the R.A.M.C. with the Egyptian Expeditionary Force. He has been lecturer in physiology at Edinburgh; and since 1921 he has been lecturer in experimental physiology and experimental pharmacology at Leeds. He is the author of publications on mammalian muscle, pulmonary circulation, and numerous other physiological subjects.

Mr. Gilbert Stead, M.A. Camb., was appointed as from August 1st next to the University Readership in Physics tenable at Guy's Hospital Medical School. He obtained a first class in both parts of the Natural Sciences Tripos, and has been since 1910 assistant demonstrator in the Cavendish Laboratory, except during the war, when he was engaged on research in wireless telegraphy for the Admiralty at Portsmouth. He is the author of numerous publications embodying the results of research on the passage of electricity through gases.

FIFTH ITALIAN CONGRESS OF MEDICAL RADIOLOGY. The Congress will be held at the University of Palermo on Oct. 18th-21st, under the auspices of the Società Italiana di Radiologia Medica and of the Minister of Public Instruction. The honorary president of the Congress will be Senator Prof. O. M. Corbino; president, Prof. G. Scaduto. Among the subjects dealt with will be Roentgenotherapy of Cutaneous Diseases (Prof. Rossi, of Parma), Pneumo-Radiography (Prof. Gortan, of Trieste), and Radiographic Diagnosis of Diseases of the Urinary Tract (Prof. Boidi Trotti, of Turin). An exhibition of apparatus will be held during the Congress. The secretary of the Congress is Dr. Salvatore Sgroi, to whom all communications should be addressed at Via Alloro, 58, Palermo, Sicily.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At an ordinary council meeting held on June 14th, Sir Anthony Bowlby, the President, being in the chair, Mr. J. Howard Mummery was introduced, and after signing the by-laws and making the required declaration was admitted a Fellow of the College.—A report was read from the Court of Examiners respecting candidates found qualified for the Diploma of Fellow and Diplomas were granted to 24 candidates mentioned in the report.—A report was read from the Board of Examiners in Dental Surgery respecting candidates found qualified for the Licence in Dental Surgery and licences were granted to 76 candidates mentioned in the report.—The following were elected Members of the Board of Examiners for the Fellowship for the ensuing year: Anatomy: J. Ernest Frazer, G. Gordon-Taylor, W. F. Haslam, W. Wright; Physiology: David de Souza, John Mellanby, Frangcon Roberts, and A. Rendle Short.—The following were elected Examiners under the Conjoint Board for the ensuing year: Elementary Biology: J. P. Hill, T. W. Shore; Anatomy: H. A. Harris, David Hepburn, John Basil Hume; Physiology: C. Lovatt Evans, H. E. Roaf; Midwifery: Eardley L. Holland, Hubert C. Roberts, G. D. Robinson, and Donald W. Roy; Public Health: Part I., Sir Fredk. W. Andrewes; Part II., Francis J. Stevens; Tropical Medicine and Hygiene: George C. Low, H. B. G. Newham; Ophthalmic Medicine and Surgery: Part I., H. Willoughby Lyle and Sir J. Herbert Parsons; Part II., Malcolm D. Hepburn; Psychological Medicine: Sir Fredk. Mott.—A report from the Committee of Management was read and approved recommending the institution of a Diploma in Laryngology and Otology, but the report will have to be approved by the Royal College of Physicians before it comes into force.—A letter was read from Mr. F. F. Burghard resigning his membership of the Court of Examiners, such resignation to take effect on the completion of the pass examination for the Membership in July. The resignation was accepted and the President reported that the vacancy would be filled up at the ordinary council on July 31st.—The President announced that Mr. N. G. Bennett's term of office on the Board of Examiners in Dental Surgery would expire on July 25th next, and that the vacancy thus occasioned would be filled up at the ordinary council on July 31st.

FOOD EDUCATION SOCIETY.—The Society has recently issued a useful leaflet for the guidance of housewives, entitled "How to Choose Sugar." This leaflet, which is a reprint of an article appearing in *National Health* in April last, discusses various forms of sugar with a view to removing the widespread misconception relating to them. Raw sugar is described as unfit for direct human consumption; "direct consumption" sugar (Demerara or brown sugar, also called by other names) is not much superior to raw sugar; "plantation white" sugar, purer than either of the foregoing, is more wholesome, but retains colouring matter, which is bleached but not removed. Beet-sugar, when properly refined, is quite as good as refined cane-sugar. The latter is "an article free from all impurity to an extent unapproached by any other foodstuff made in such large quantity," attaining a purity of 99.9 per cent., and being better for all purposes in direct ratio to its purity. The leaflet may be obtained (post free, 1½d.) from the Society, 329, Vauxhall Bridge-road, London, S.W. 1.

MENTAL HOSPITAL MATRONS' ASSOCIATION.—On June 14th a meeting was held in the Board Room of Bethlem Royal Hospital, London, to discuss the formation of a Mental Hospital Matrons' Association. The meeting was a representative one, matrons of mental hospitals throughout the country being present. The objects of the proposed Association are: (1) To enable members to take counsel together on matters affecting their profession, and to exchange ideas as to the present system of nursing in our mental hospitals, and as to how this system could be further advanced and improved, both in the interests of the nursing staff and to the advantage of the patients under their care. (2) To maintain the honour and further the interests of the mental nursing profession. Miss Macaulay, matron of the Kent County Mental Hospital, Maidstone, said that an organisation of this kind should prove helpful and beneficial to nurses in hospitals and those engaged in private nursing. Meetings could be held at the various hospitals, say every three months, by the permission and invitation of the medical superintendent and matron. The Matrons' Association would be able to speak with authority on behalf of mental nurses generally and to bring matters specially affecting them to the notice of the Mental Representatives on the General Nursing Council. The resolution to form a Mental Hospital Matrons' Association was carried unanimously, and a vote of thanks was passed to the *Nursing Times* for its help in promoting the meeting and its encouraging interest in mental nurses.

CONFERENCE ON INFANT WELFARE.—The programme of conference to be held at Carnegie House, 117, Piccadilly, London, W., on July 2nd, 3rd, and 4th, has been issued by the National Association for the Prevention of Infant Mortality and National Baby Week Council under whose auspices it will be held. On July 2nd Dr. G. F. Still will take the chair. Mr. Neville Chamberlain will give a presidential address, and Dr. J. S. Fairbairn, Mr. Eardley Holland, Dr. Eric Pritchard, Dr. R. C. Jewesbury, Prof. A. L. McIlroy, Dr. Donald Paterson, and others will discuss the Causal Factors of Infant Mortality up to One Month of Age (ante-natal, intra-natal, and neo-natal) and their Prevention. In the afternoon, Dr. Janet M. Campbell presiding, a debate on the Value of Maternity Homes in a Maternity and Child Welfare Scheme will be opened by Dr. W. Allen Daley, Mr. A. Leyland Robinson, and Miss Wishart. At 5 p.m. a meeting of the General Council of the Association of Infant Welfare and Maternity Centres will be held, when a discussion on Should Out-relief be Given in Cash or in Kind, with special reference to Dietaries for Children under Five will be opened by Dr. Stella Churchill and Mrs. Duncan Harris. At 7 p.m. Mr. R. C. Elmslie will give a lecture on the Prevention and Treatment of Crippling in Children, and at 8 p.m. Dr. C. E. Wallis will give an address on the Preservation of the Teeth (illustrated by lantern slides).—On the 3rd, Mr. H. O. Stutchbury presiding, Dr. W. G. Willoughby, Dr. Mabel Brodie, and Dr. E. R. Fothergill will discuss the Scope, Staffing, and Administration of Maternity and Child Welfare Centres. In the afternoon, under the chairmanship of Dr. J. W. Robertson, a debate on Is It Advisable in Urban Areas to Combine the Functions of the Health Visitor with those of other Officers of Local Authorities? will be opened by Dr. E. W. Hope, Dr. F. E. Wynne, and Miss Sayle. At 5 p.m. the annual general meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health will be held, and a discussion on the Feeding of Children from 5 Years of Age will be opened by Prof. E. Mellanby. At 7 p.m. Mr. Bishop Harman will lecture on the Prevention of Blindness in Young Children, and at 8 p.m. Dr. S. G. Moore will give an account of some special work in Huddersfield for the reduction of infant mortality.—On the 4th, in the morning, Dr. Constance Ellis will preside. The subject for debate will be the Maternity Convention passed by the Washington Convention, 1919, and Miss Margaret

Bondfield and Dr. Rhoda Adamson will contribute papers. In the afternoon, Sir Arthur Stanley presiding, a debate on Housing in Relation to Infant Welfare will be opened by Dr. Marion Cockerell, Miss M. M. Jeffery, and Miss S. M. Bushell. At 7 p.m. Dr. Evelyn Saywell will lecture on the Psychology of Infancy, and at 8 p.m. Miss Norah March on the Efficiency of the Infant Welfare Worker: A Problem of Physiology and Psychology. Visits to various institutions connected with infant welfare will be paid during the Congress. Further particulars of the Congress may be obtained from the Secretary at 117, Piccadilly.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The annual meeting of the Association will be held on July 9th to 13th under the presidency of Lieut.-Colonel E. Goodall, at 11, Chandos-street, Cavendish-square, London, W. 1, and 1, Wimpole-street, London, W. 1.

HOSPITALS AND LEGACY DUTY.—On June 26th a deputation waited upon Sir William Joynson-Hicks, Financial Secretary to the Treasury, in support of the proposal that legacies to hospitals should be exempted from legacy and succession duty. It was contended that the scheme for the re-establishment of voluntary hospitals contained in Lord Cave's Report should be treated as a whole, and that the proposal that legacies to hospitals should be exempted from legacy duty was an integral part of it. Sir William Joynson-Hicks promised to report the opinions of the deputation to the Prime Minister. The deputation was introduced by Dr. Macnamara, M.P., and included the following:—

Members of Parliament: Lord Ednam, Major the Hon. Edward Cadogan, Colonel Maurice Alexander, K.C., and Dr. W. A. Chapple.

Representatives of King Edward's Hospital Fund for London: Lord Somerleyton, Lord Stuart of Wortley, Lord Mildmay of Flete, Sir William J. Collins, Sir Basil Mayhew, and Mr. H. R. Maynard (secretary).

Representatives of the British Hospitals Association: Lord Knutsford, Lord Hambleden, Lord Stanmore, the Hon. Sir Arthur Stanley, Mr. Thomas Hayes, and Mr. J. Courtney Buchanan (honorary secretary).

The following hospital representatives were unavoidably prevented from attending: Lord Burnham (King Edward's Hospital Fund), Mr. Wade Deacon, of Liverpool, Sir Henry Hadlow, of Sheffield, and the Rev. G. B. Cronshaw, of Oxford (British Hospitals Association).

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The annual dinner of this Society brought a large company to the Café Monico on the evening of June 19th. The occasion was distinguished by the presentation to Sir Clifford Allbutt of the Society's triennial gold medal. In accepting this honour the venerable professor made a speech which for the vigour of its delivery and for the complete familiarity which it showed with the latest developments of medical and ancillary science must have put envy into the hearts of even the youngest and most brilliant of his hearers. The toast list was a long one and we cannot linger over the many wise and entertaining observations which it called forth. Mention must be made, however, of the Cavendish lecturer, Dr. Henry Head, whose witty reply was equal to the concise and eloquent speech in which Sir Humphry Rolleston proposed his health. Sir Arbuthnot Lane, in proposing the Society's health with that of its President, Dr. A. G. Wells, urged the Society and the hospital with which it is associated to march shoulder to shoulder with other post-graduate schools and make London the premier city of the world for post-graduate instruction.

STUDY-TOUR OF SPAS IN JURA AND SAVOY.—The seventeenth Voyage d'Etudes Médicales tour will take place under the scientific direction of Prof. Paul Carnot and Prof. agrégé Rathery from Sept. 9th to 22nd. The meeting place is Besançon. Thence visits will successively be made to La Mouillière, Salins-du-Jura, Divonne, with a diversion to visit the Swiss Universities of Geneva and Lausanne; thence to Evian, Thonon, Chamonix, Saint-Gervais, Annecy, Aix-les-Bains, le Revard, Challes, Allevard, Moutiers-Salins, Brides, Pralognan, Uriage, Grenoble, St. Pierre de Chartreuse, La Motte-les-Bains, La Grave, and le Lautaret; thence to Lyons, where after visiting the school of medicine and the town sights, the party will break up. This tour is reserved primarily for doctors and medical students, who may be accompanied by wife or daughter up to 15 per cent. of the total membership. The cost from Besançon to Lyons is fixed at 790 francs, all included. A reduction of 50 per cent. will be granted on the French railways to the meeting place and from the place of dispersal to the frontier station. Further information may be obtained on application personally or by post to Mme. Juppé-Blaise, representative of the French spas, at the French Touring Office, 56, Haymarket, London, S.W. 1.

DONATIONS AND BEQUESTS.—By the will of the late Mr. Charles Beasley, of The Cottage, Abbey Wood, Kent, the testator left £5000 to the Woolwich Memorial Hospital

for the endowment fund: £1000 each to the Woolwich and Plumstead Nurses' Association for the endowment fund, Woolwich and Plumstead Cottage Hospital, Home for Mothers and Babies, Wood-street, Woolwich, Middlesex Hospital (for the cancer research fund), St. Bartholomew's Hospital, Guy's Hospital, the London Hospital, Charing Cross Hospital, Miller Hospital, Greenwich, the Brompton Hospital for Consumption, the Cancer Hospital, Fulham-road, the Hospital for Sick Children, Great Ormond-street, the Royal Waterloo Hospital for Children, the Surgical Aid Society, and St. Dunstan's Hostel for Blinded Soldiers and Sailors.—The late Mr. John Fleming, of Woodside-crescent, Glasgow, left by will £2000 each to the Glasgow Royal Infirmary, the Western Infirmary, Glasgow, the Victoria Infirmary, Glasgow, and the East Park Home for Infirmary Children, and £1000 to the Royal Hospital for Sick Children, York Hill, Glasgow.—The late Mr. Arthur Worthington, of The Hydro, Neville-crescent, Llandudno, who left property of the gross value of £35,967, bequeathed, after certain small legacies have been paid, two-fiftieths to the Infirmary for Children, Liverpool, and one-fiftieth each the Royal Infirmary, Royal Southern Hospital, St. Paul's Eye Hospital, Eye and Ear Hospital, and the Hospital for Cancer.—The late Sir Joseph Walton, of Rushpool, Saltburn, and of Middlesbrough, Yorks, among other bequests, has left a sum of £20,000 and a sum of £5000 (less a charge for annuities amounting to £250 per annum) on trust to apply the income for the ten years following his death, as to: four-tenths to the Beckett Hospital, Barnsley, for the children's ward; two-tenths to the North Riding Infirmary, Middlesbrough, for the children's ward; two-tenths to the North Ormesby Cottage Hospital, for the children's ward; two-tenths to the Joe Walton Boys' Club, Faversham-street, Middlesbrough, all in memory of his son Joseph, and with remainder to his residuary estate. He also left, in memory of his son Joseph, £250 a year for ten years, to be divided between certain institutions, including the North Ormesby Cottage Hospital, the Beckett Hospital, Barnsley, Industrial School Nurses' Home at Middlesbrough, and the Barnsley Nursing Association.—Under the will of the late Mr. William Strickland, of Graveleythorpe, Halton, near Leeds, the testator left, subject to certain life interests, £1000 and 1000 shares in John Barran and Sons, Ltd., between the Leeds General Infirmary and the Women's and Children's General Hospital; £100 to the Leeds Public Dispensary, and £100 to St. John's Homes for Incurables, Seorton, and the residue (after certain private bequests) to such institutions, having for their object the aid of crippled or disabled soldiers, as the executors think best.—The directors of Messrs. Brunner Mond and Co. have decided to make a jubilee gift of £1000, and have sent a cheque for that amount, to the Victoria Infirmary, Northwich.—The Chelsea Hospital for Women has received £281 from the estate of the late Miss Giacomelli, a former patient of the hospital.—The Manchester Royal Infirmary has received from the Manchester, Salford and District Joint Committee of Hospital and Saturday Fund £1568.—The Lord Mayor of Manchester's 2,000,000 Shilling Hospital Fund has reached over £30,000. A cheque for £905 has been received from the management of the Housekeeping Exhibition, and the directors of the Ship Canal have voted £250 to the fund.

AMBULANCE FACILITIES.—The great development in recent years of the home service ambulance scheme is well shown in the report of the Norfolk branch of the British Red Cross Society for 1922. The county director considers that many lives are saved each year by this service owing to the improved method of transit of serious medical and surgical cases. There are eight ambulance stations in the County of Norfolk: at Cromer, Downham Market, East Dereham, Hunstanton, Norwich, King's Lynn, Thetford, and Great Yarmouth. In 1919 the number of patients dealt with was 358 and the mileage covered 6193. The corresponding figures in 1920 were 701 and 16,030; in 1921, 676 and 13,572; and in 1922, 832 and 14,796, so that in four years no less than 2567 cases have been dealt with and 50,592 miles covered. Last year the Norwich car carried 190 patients and travelled 5622 miles, while the Yarmouth car carried 329 patients and travelled 1271 miles.

WORLD'S DAIRY CONGRESS IN U.S.A.—The Congress will be held from Oct. 2nd to 10th at Washington, D.C., Philadelphia, Pa., and Syracuse, N.Y. The provisional programme includes, on Oct. 2nd and 3rd, the official welcome and opening of the Congress by high Government officials of the United States, addresses by members of the President's Cabinet and distinguished speakers from several countries, three formal sessions of the Congress, visits to dairy division laboratories, a dairy experimental farm, &c., and various social functions. At Philadelphia, on the 4th, the Congress will consider the work of the National Dairy Council. At Syracuse, N.Y., the Congress will continue to sit from the 5th to 10th, but delegates will participate in the opening of the seventeenth annual National Dairy Exposition, and will have the opportunity of making various tours

of inspection; numerous social activities will take place under the auspices of the Syracuse civic and dairy bodies. Owing to the full programme of Oct. 2nd and 3rd, persons wishing to make extended visits to Government laboratories and places of interest in Washington will find it advantageous to come in advance of the opening of the Congress. Full information may be had on application to the World's Dairy Congress Association, Inc., Star Building, Washington, D.C., U.S.A.

The Services.

INDIAN MEDICAL SERVICE.

THE annual dinner in London of officers of the Indian Medical Service was held at the Trocadero Restaurant on June 20th. Major-General Sir W. R. Edwards, K.C.B., K.C.I.E., being in the chair. The only guests present were Mr. Austin Low, C.I.E., and representatives of the *British Medical Journal* and *The Lancet*. The officers present numbered 96, as follows:—

Major-Generals: Charles, Sir R. H., G.C.V.O., K.C.S.I.; Deare, B. H., C.I.E.; Giffard, Sir G. G., K.C.I.E., C.S.I.; Grainger, T., C.B.; Harris, G. F. A., C.S.I.; Hendley, H., C.S.I.; and Smith, J. B., C.B., C.I.E.

Colonels: Banatyala, Sir H. E., C.S.I.; Chapman, P. F., C.I.E.; Close, J. K.; Crimmin, J., V.C., C.B., C.I.E.; Garvie, J.; Granger, T. A., C.M.G.; Green, C. R. M.; Macnab, A. J., C.B., C.M.G.; Pratt, J. J.; Quayle, W. A.; Smith, H. Austen, C.I.E.; Stodart, T., C.I.E.; Turner, R. G., C.M.G., D.S.O.; and Wimberley, C. N. O., C.M.G.

Lieut.-Colonels: Alcock, A., C.I.E.; Alpin, W. G. P., O.B.E.; Anderson, J., C.I.E.; Blenkinsop, F. L.; Calvert, J. T., C.I.E.; Crawford, D. G.; Graham, J. D., C.I.E.; Crawford, J. M., O.B.E.; Coppinger, W. V., D.S.O.; Dawes, C. D.; Donovan, C.; Duer, C.; Gill, C. A.; Hamilton, J. A., C.M.G.; Hudson, C. T., C.M.G.; Hugo, E. V., C.M.G.; Hulbert, J. G.; James, C. H., C.I.E.; James, S. P.; Jordan, J. G.; Kirkpatrick, H.; Kunhardt, J. C. G.; Lane, W. B., C.I.E., C.B.E.; Lloyd, R. A., D.S.O.; Masson, J.; Mell, F. O. N., C.I.E.; Miller, A.; Mitter, R. K.; Mulroney, T. R.; O'Kinealy, F., C.I.E., C.V.O.; O'Meara, E. J., O.B.E.; Prall, S. E.; Price, R. H.; Rainier, N.; Roberts, Sir J. R., C.I.E.; Rogers, Sir L., C.I.E.; Saigol, R. D.; Shaw, W. S. J.; Smith, G. M. C., C.M.G.; Lane, Clayton; Melville, C. W. F.; Rost, E. R., O.B.E.; Smith, H., C.I.E.; Steen, R.; Standage, R. F., C.I.E.; Street, A.; Thomson, C.; Thornhill, W. H.; Walsh, J. H. Tull; Walton, H. J.; Walker, J. N.; Warlicker, D. P.; Watson, J. W., C.I.E.; Wortabet, H. G. L.; and Younan, A. C.

Majors: Clifford, R. C., D.S.O., M.C.; Brown, H. C., C.I.E.; Cameron, A., O.B.E.; Hughes, T. A.; Hume, N. H.; Lloyd, R. B.; Lynn, G. R., D.S.O.; Mills, P. S.; Munro, A. C.; Thakur, K. S.; Tressider, A. G.; White, M. F., O.B.E.; and Wells, R. L.

Captains: Albuquerque, J. W. F.; Basu, P.; Covell, G.; Khan, M. M.; McIver, C.; McRobert, G. R.; and Thomas, D. R.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg.-Lt. (Dental) C. Williams is transferred to permanent list in rank of Surgeon-Lieut.

ROYAL NAVAL VOLUNTEER RESERVE.

G. A. Clark is entered as Surg.-Lt. on the permanent list.

ROYAL ARMY MEDICAL CORPS.

Maj. J. MacKenzie relinquishes the temp. rank of Lt.-Col. Temp. Capt. W. M. M. Jackson relinquishes his commn. and retains the rank of Capt.

TERRITORIAL ARMY.

General List: Capt. L. H. D. Castle (R.A.R.O.) to be Capt. for service with Imperial Service College Contingent, Junior Div., O.T.C.; Lt. J. G. B. Coleman to be Capt. (prov.).

Capt. T. S. Worboys, having attained the age limit, is retired, and is granted the rank of Maj.

L. F. O'Shaughnessy to be Lt.

General Hospitals: Capt. A. A. Burrell, B. A. W. Stone, and W. Y. Woodburn relinquish their commns. and retain the rank of Capt.

Maj. H. E. Counsell, having attained the age limit, is retired, and retains the rank of Maj.

Capt. W. H. Nutt, having attained the age limit, is retired, and retains the rank of Capt.

Edinburgh University Contingent (Medical Unit) Senior Div.: Lt. W. R. Martine to be Capt.

TERRITORIAL ARMY RESERVE.

Lt.-Col. W. Kirkpatrick, having attained the age limit, is retired, and retains the rank of Lt.-Col.

Sanitary Companies: Capt. S. J. Clegg relinquishes his commn. and is granted the rank of Maj.

ROYAL AIR FORCE.

J. A. Quin is granted a short service commission as a Flight Lt.

Parliamentary Intelligence.

HOUSE OF COMMONS

WEDNESDAY, JUNE 20TH.

Sexual Offences against Children.

Major PAGET, in asking leave to introduce a Bill "to provide for the better protection of young children," said it consisted of one clause only, which was: "Any person who shall be guilty of a felony or misdemeanour under Section 4 or 5 of the Criminal Law Amendment Act, 1885, and be convicted thereof, may at the discretion of the Court and in addition to any term of imprisonment in the said Act provided be sentenced in respect of the said offence to be once privately whipped. The number of strokes and the instrument with which they are to be inflicted shall be specified by the Court in the sentence." Section 2 of Section 4 of the Act of 1885 laid down that for these sexual offences against young children under 13 a youth of 16 might be whipped. The Bill, he said, merely extended this to those of a more advanced age, who should know considerably better. The Bill aimed at the protection of young and innocent children, and he was afraid that these offences against them were distinctly on the increase. One or two mental degenerates might get beaten instead of being put in an asylum, but if it protected only four or five innocent little girls from outrage he thought that they could be quite content and happy in their consciences.

Mr. BUCHANAN, while agreeing that such crimes should be condemned, thought that the Bill was not a proper method of preventing them. He would sooner that the Bill compelled the person committing such a crime to abstain from human society for all time rather than he should be beaten. Whipping was not so much a disgrace to the person whipped as to the person who did the whipping.

The Bill was read a second time without a division.

Transference of Panel Patients.

Mr. EMLYN-JONES asked the Minister of Health if his attention had been drawn to the practice of certain medical practitioners of transferring their panel patients to other doctors for a monetary consideration regardless of the wishes of the patients themselves, and whether he would take steps to prevent such a practice being pursued.—Mr. NEVILLE CHAMBERLAIN replied: The hon. Member is under a misapprehension. Under the Medical Benefit Regulations no insured person can be transferred to any practitioner against his wishes, and his rights in this respect are in no way affected by any arrangements which doctors may make with one another for the sale of the goodwill of a practice.

Mr. EMLYN-JONES: Is it not a fact that panel patients have to give six months' notice to transfer, and that in many cases they are transferred to another practitioner against their will before the expiry of the requisite notice?

Mr. CHAMBERLAIN: It still remains the fact that he cannot be transferred against his wish.

Sir KINGSLEY WOOD: Is the right hon. gentleman aware that there is a large body of opinion that has strong objections to this practice, and is this one of the matters which is going to be considered by him and the special committee of the British Medical Association? Can the right hon. gentleman inform the House whether he proposes to make a statement to the House following this conference with that special committee?

The SPEAKER: These questions should be put on the paper.

Small-pox in the Army.

Mr. LEACH asked the Under Secretary of State for War for the figures indicating an increase in small-pox in the army consequent on the suspension of the vaccination recruiting regulation, giving also the attack-rate per million strength.—Lieut.-Colonel GUINNESS replied: I am not at present in a position to give the attack-rate per million strength, but in France there were no cases of small-pox before 1916 and 12 cases subsequently. In Iraq there were 2 cases in 1916, 364 in 1917, and 597 in 1918. Of the cases in Iraq, about 84 per cent. occurred amongst men who had not been vaccinated or re-vaccinated since enlistment.

Medical Men at Ministry of Health.

Mr. BECKER asked the Minister of Health how many medical men were employed at the Ministry of Health and regional headquarters on a sessional basis, and if, owing to the urgent need of economy, he would consider placing some of these on the salaried staff.—Mr. NEVILLE CHAMBERLAIN replied: There are 54 medical men employed in the work of the regional staff on a sessional basis. There would be no economy in placing any of these on the salaried staff.

Mr. BECKER asked the Minister of Health how many retired-pay medical officers who were in receipt of pensions from the army, &c., were employed in salaried positions in

the Ministry of Health, and if he would recommend that these officers be replaced by some of the highly experienced ex-Service men who were not so placed.—Mr. NEVILLE CHAMBERLAIN replied: Three medical officers of the Ministry of Health are in receipt of retired pay; two of these officers are established civil servants and the unestablished officer possesses special qualifications in connexion with venereal disease. I am unable to adopt the suggestion contained in the latter part of the hon. Member's question.

Hospitals and Nurses' Training Rules.

Mr. FOOT MITCHELL asked the Minister of Health whether he was aware of the serious position in which the smaller hospitals had been placed in consequence of the regulations of the General Nursing Council regarding the training of nurses, which had increased the difficulty of obtaining probationers in such hospitals and were adding seriously to the financial difficulties with which they had to contend; and whether he would approach the General Nursing Council with a view to some modifications being made in their regulations in order to overcome these difficulties and enabling nurses trained in such hospitals to be qualified for registration after passing the central examination or otherwise.—Mr. NEVILLE CHAMBERLAIN replied: I have not received representations in this sense. It is open to any hospital which is refused approval by the General Nursing Council to appeal to me, and no such appeal has been made. I see no reason for adopting the suggestion contained in the last part of the question.

Deaths from Pregnancy or Childbirth.

Mr. TURNER asked the Minister of Health what number of women died through pregnancy or childbirth in England and Wales during the past year.—Mr. NEVILLE CHAMBERLAIN replied: The number of deaths classed to pregnancy and childbirth in 1922 was 2971. In the same year the number of deaths associated with childbirth but attributed to other causes was 1051.

New Houses in England.

Mr. GILBERT asked the Minister of Health whether he could state, approximately, the number of new houses which had been built and completed for occupation in each of the years 1920, 1921, and 1922 in England; and could he also state how many new houses were under construction in the same area at the present time.—Mr. NEVILLE CHAMBERLAIN replied: During the three years 1920, 1921, and 1922 the number of houses completed in England and Wales under State-aided housing schemes was 15,700, 86,669, and 88,976 respectively. Statistics are not available showing the total number of houses erected during the same period without State aid. On June 1st, 8019 houses were in course of construction under the State-assisted scheme authorised by the Housing, Town Planning, &c., Act, 1919. In addition, schemes for over 13,000 houses have been authorised which will rank for assistance under the new Bill if it becomes law. According to a return recently obtained from certain local authorities, 14,763 houses had been completed by private builders since the end of September last and 17,693 houses were in course of construction without State assistance.

THURSDAY, JUNE 21ST.

Birmingham Hospital Fire.

Sir EVELYN CECIL asked the Minister of Pensions what steps had been taken with reference to the promised inquiry into the cause of the fire at the Pensioners' Hospital, Highbury, Birmingham, on June 13th.—Major TRYON replied: I have appointed the Parliamentary Secretary to the Ministry (Captain Craig) to be Chairman of a Committee of Inquiry into this regrettable matter, the other members being: Mr. G. Topham Forrest, F.R.I.B.A. (architect to the London County Council); Mr. A. R. Dyer, A.M.I.C.E. (chief officer of the London Fire Brigade); Mr. H. Baines, O.B.E. (chief engineer, Office of Works); Dr. H. Lightstone, D.S.O., M.C. (headquarters inspector, Ministry of Pensions); and Mr. T. A. Pole, A.R.I.B.A. (architect to the Ministry of Pensions). The Committee's terms of reference are: "To ascertain the cause of the fire which recently took place at Highbury Hospital and to consider whether any and, if so, what precautions are required to prevent similar accidents in future at hospital buildings for which the Ministry is responsible."

Replying to further questions, Major TRYON said that the Committee had already started work. One of the patients was undoubtedly very ill, but he understood that he was better. The other patients, including the orderly, were going on well.

Motor Accidents.

Mr. NOEL BUXTON asked the Secretary of State for the Home Department whether, having regard to the increase in the number of motor accidents in which young children lost their lives, he would consider the question of introducing further legislation with a view to increasing the penalties on negligent motorists.—Colonel W. ASHLEY (Parliamentary

Secretary to the Ministry of Transport) replied: No records are available which show separately the number of motor accidents in which young children have lost their lives. During the past few years the number of fatal road accidents in which motor vehicles have been involved has not shown any serious increase, taking into consideration the considerable increase in the number of motor vehicles on the road.

Reorganisation of Pensions Ministry and Ministry of Health.

Mr. FOOT asked the Secretary to the Treasury whether the reorganisation of the Ministry of Pensions had yet been completed, and, if so, what steps had been taken during regrading to put into operation Clause 2 of the Resolution of the House on August 5th, 1921, as to equality of opportunity for women; what branches of the Ministry previously closed to women had now been opened to them; whether women had now been excluded from any branch in which they were employed on August 5th, 1921; and what steps had been taken to ensure that women had an opportunity of training for the higher posts in the department irrespective of those posts which involved solely supervision of staff.—Major TRYON replied: The reorganisation of the Ministry of Pensions is not yet completed. Before regrading began the number of established posts held by women was very small, only 30 established women, excluding typists, being employed in the Department. Under the regrading scheme the number of posts above the rank of writing assistant allotted to women is 400. These posts are in five separate branches of the Ministry, as against six in which established women were employed before regrading. It has been found convenient to concentrate the greater part of the female staff in branches where the work is regarded as specially suitable to women. The opportunities given to women officers to train for higher duties are similar to those given to men of corresponding rank.

Mr. FOOT asked the Secretary to the Treasury whether the reorganisation of the Ministry of Health had yet been completed, if so, what steps had been taken during regrading to put into operation Clause 2 of the Resolution of the House on August 5th, 1921, as to equality of opportunity for women; what branches of the Ministry previously closed to women had now been opened to them; whether women had now been excluded from any branch in which they were employed on August 5th, 1921; and what steps had been taken to ensure that women had an opportunity of training for the higher posts in the department irrespective of those posts which involved solely supervision of staff.—Mr. NEVILLE CHAMBERLAIN replied: The rearrangements under the National Whitley Council's Reorganisation Report have been practically completed in the Ministry of Health. In the reorganisation full weight has been given to Clause 2 of the Resolution of the House of August 5th, 1921. Women have been promoted into all of the grades dealt with under the reorganisation scheme, including new posts in the administrative and executive grades. Women have not been excluded from any branch in which they were employed on August 5th, 1921. By placing women in the clerical, executive, and administrative grades full opportunity will arise of training for the higher posts in the Ministry.

MONDAY, JUNE 25TH.

Small-pox at Gloucester.

Mr. LEACH asked the Minister of Health what was the evidence that the epidemic which had occurred in the city of Gloucester was really an epidemic of small-pox, seeing that, although it was estimated that 2000 cases of the disorder had occurred, there had been a complete absence of invalidity or injury during the attack, an absence of any invalidity subsequent to the attack, and that the mortality had been nil; and could he explain why, under these circumstances, it was necessary for the Ministry to interfere or to issue his directions to deal with an outbreak which was associated with no untoward results of any description.—Mr. NEVILLE CHAMBERLAIN replied: The epidemic in Gloucester has been recognised as small-pox by a large number of local medical men, by officers of my department, and by Dr. C. Cameron, of the Metropolitan Asylums Board, who was called in as an expert by the Corporation. I may add that a number of cases of small-pox were recognised in other districts and traced to Gloucester. The statements in the question as to the absence of injury or invalidity either during or subsequent to the attacks are not correct, as I am informed that although the type of the disease is mild and no deaths have yet occurred many of the patients have been seriously ill. The action of my department has led to the localisation and control of an outbreak which had already begun to spread to other parts of the country and which, if unchecked, might have caused widespread disturbance of trade as well as danger to the public health.

TUESDAY, JUNE 26TH.

Small-pox at Gloucester.

Colonel Sir ARTHUR HOLBROOK asked the Minister of Health whether, having regard to the serious outbreak of

small-pox at Gloucester and elsewhere, he would consider the repeal of Section 1 (1) of the Vaccination Act, 1907, exempting persons conscientiously believing that vaccination would be prejudicial to the health of the child.—Lord E. PERCY replied: My right hon. friend cannot undertake to introduce legislation for the amendment of the Vaccination Acts during the present session.

Vaccination in the Army.

Mr. SNOWDEN asked the Under-Secretary of State for War how many vaccinations or re-vaccinations, per 1000 strength, were performed on British soldiers during each of the years 1914 to 1921, inclusive.—Lieut.-Colonel GUINNESS replied: The ratio per 1000 strength in 1921 was 250.10, but I regret that similar information for the earlier years is not available.

Small-pox in Germany.

Mr. BROMFIELD asked the Minister of Health whether he could state the number of cases of small-pox and the deaths from that disease which had occurred in Germany in each of the years 1917, 1918, 1919, 1920, 1921, and 1922.—Mr. NEVILLE CHAMBERLAIN replied: The following statement gives the number of cases of small-pox and the number of deaths from that disease which have occurred in Germany during each of the years in question. The figures for 1919 to 1922 are provisional and the numbers of deaths in 1921 and 1922 are not yet available:—

1917 ..	3043		456	1920 ..	2042		332
1918 ..	417		58	1921 ..	688		—
1919 ..	4431		704	1922 ..	215		—

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Thursday, July 5th.

ANNUAL GENERAL MEETING: at 5 P.M.

Business:

(1) To receive

- (a) the Report of the Council;
- (b) the Report of the Hon. Treasurers;
- (c) the Report of the Hon. Librarians.

(2) To elect the Officers and Council for the session 1923-24: to be immediately followed by a

SPECIAL GENERAL MEETING OF FELLOWS.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.

WEDNESDAY, July 4th.—5.30 P.M., Mr. Harold Chapple: Common Painful Gynaecological Conditions.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, July 2nd.—10 A.M., Mr. Maingot: Surgical Pathology. 2 P.M., Mr. Addison: Surgical Wards. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10.30 A.M., Dr. Paterson: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 11 A.M., Mr. Simson: Gynaecological Demonstration. 2 P.M., Dr. Burnford: Medical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 2 P.M., Mr. Bishop Harman: Eye Dept. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Dept. 2 P.M., Dr. Burrell: Medical Out-patients. 2 P.M., Mr. Banks-Davis: Nose, Throat, and Ear.

SATURDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear. 9.30 A.M., Dr. Burnford: Bacterial Therapy.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, July 4th.—4.30 P.M., Dr. C. E. Lakin: Demonstration of Medical Cases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Demonstration of Clinical Cases at 3.30 P.M.

MONDAY, July 2nd.—Mr. Aubrey Goodwin: Gynaecological.

TUESDAY.—Dr. J. Metcalfe: Radiological.

WEDNESDAY.—Mr. C. H. Hayton: Throat and Nose.

THURSDAY.—Dr. Yealland: Medical.

FRIDAY.—Mr. E. Gillespie: Surgical.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

WEDNESDAY, July 4th.—4.15 P.M., Dr. W. M. Feldman: The Physiology of the Infant.

FRIDAY.—4.15 P.M., Mr. H. S. Souttar: Intracranial Tumours.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, July 5th.—4 P.M., Dr. Still: Convulsions: Their Significance and Treatment.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.
THURSDAY, July 5th.—5 P.M., Mr. T. B. Davies: Acute Abdominal Pain in Pregnancy.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.
MONDAY, July 2nd.—At Hereford, Mr. H. Chitty: Treatment of Painful Feet.

Appointments.

BROUGH, AGNES G., M.B., Ch.B. Edin., has been appointed Surgeon to the Ear and Throat Section of the Birmingham Hospital.

COHEN, E., M.R.C.S., L.R.C.P. Lond., House Surgeon, Princess Alice Hospital, Eastbourne.

FORREST, A. W., M.D. Edin., D.P.H., Deputy Medical Officer of Health and Tuberculosis Officer for the Metropolitan Borough of Wandsworth.

LESLIE, W., M.B., Ch.B. Lond., Resident Medical Officer, Worcester General Infirmary.

ROE, G. C. F., L.R.C.P. & S. Irel., D.P.H., Deputy Medical Officer of Health, Wakefield.

University of London: FOULERTON, A. G. R., F.R.C.S. Eng., Examiner for the Degree of M.D. State Med.; and SAVAGE, W. G., M.D., B.Sc. Lond., External Examiner in Hygiene and Bacteriology for B.Sc. Degree and the Diploma in Household Science.

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GWYNNE-JONES.—On June 18th, at The Little House, Gerrards Cross, Bucks, the wife of Dr. H. Gwynne-Jones, of a son.

HALSTEAD.—On June 20th, at Russell Hill, Purley, the wife of Dr. Oliver Halstead, of a daughter.

MAHON.—On June 19th, at Upper Brook-street, Grosvenor-square, the wife of Dr. Edward M. Mahon, of a daughter.

DEATHS.

EMERY.—On June 19th, at Red Cross Hospital, Brighton.

Walter d'Este Emery, M.D., M.R.C.P. Lond., aged 53 years.

GIRVIN.—On June 25th, at a nursing home, Colonel John Girvin, (A.M.S. retired), aged 61 years.

LAMB.—On June 19th, at The Orchard, Marlow, William Henry Lamb, M.B., aged 72.

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SOCIETY FOR PRESERVING THE HEALTH OF THE JEWS.—Some statistics of the sanitary conditions among the Jews in Russia and an account of the activities of the O.Z.E. (Society for Preserving the Health of the Jews) were given by Dr. M. Schwartzman at a meeting of Jewish doctors at Jews' College, Bloomsbury, on June 10th. He said that the civil war and the social revolution had resulted in complete economic ruin, in which the Jews were the principal sufferers. The rate of mortality was computed at 80 per 1000, and in some places it reached 150–200 per 1000. The rate of births sharply declined, and the power of resistance was greatly lowered. Dr. Schwartzman's address had for its object the stimulation of interest in the O.Z.E. organisation. Started before the war with the object of stemming the effects of economic and political persecution on the physique of the Jewish masses, the O.Z.E. had established before the revolution a network of institutions, hospitals, sanatoria, open-air colonies, and the like, and had developed physical culture and sanitary education with marked results. Between 1914 and 1918 the O.Z.E. had got to work in 218 localities, with 105 hospitals and 190 sanitary establishments, and was taking care of 90,000 children. The budget of the O.Z.E. in these three years exceeded £500,000. A resolution was passed to establish in London an organisation in support of the O.Z.E. Dr. Redcliffe N. Salaman, who presided at the meeting, read out a number of messages containing expression of support and sympathy, among them letters from Lord Robert Cecil, Mr. Ramsay MacDonald, Sir Sydney Russell-Wells, Sir Frederick Mott, Dr. Charles Myers, and Prof. Zeligman. Mr. A. H. Levy, F.R.C.S., was elected chairman of the committee which will be in charge of the work of the organisation.

Notes, Comments, and Abstracts.

THE ANATOMY OF THE DRIVING GRIP IN GOLF.

BY WM. CUTHBERT MORTON, C.B.E., M.D. EDIN.,
HONORARY DEMONSTRATOR IN ANATOMY, UNIVERSITY OF LEEDS.

To understand the driving grip in golf, we must consider, first, the object to be gripped, which is the club known as the driver, and, secondly, the gripper, which is the hand. Although both hands are used it will be enough to study the mechanism of one, preferably the right.

The Driver.

The driver is simply a shaft of wood leathered at its near end to form a handle, and at its far end fitted laterally and obliquely with a head, which, when the handle is obliquely gripped, and the whole club obliquely swung, should sweep the ground and propel the ball without rotating the shaft, and so giving a wrong direction to the "stroke." Before the stroke the club must be swung, and before the swing the ball must be "addressed," the whole body being adjusted in preparation for the swing. The club must be so gripped that the grip may be maintained throughout and after the swing, keeping the club all the time under control, yet all the time allowing it the fullest possible freedom. To understand the grip we must see the hand working in coöperation with the forearm.

The Hand.

Each hand is made up of the "palm" (metacarpal part of the hand) and the digits. The palm as seen from in front consists of the ball of the thumb, the ball of the little finger, and the somewhat triangular part which is bounded at the sides by these and below at its base by the webs and the first creases of the index, ring, and middle fingers, the apex of the triangle being above towards the wrist. The palm includes the wrist-bones, with which we are not here concerned. It has also five metacarpal bones, one for each digit, the four for the fingers being relatively immobile, while that for the thumb is more free. The digits are jointed to the palm, and they are also jointed within themselves in such a way that each finger has three separate parts (phalanges) and the thumb has two. The phalanges are numbered in order from the palm to the finger-tips.

The Fingers.

When the hand lies on its back at rest, all the phalanges of the fingers are slightly flexed (bent forwards) in such a way as to form an almost transverse groove, the bottom of which corresponds to the creases between the first and second phalanges. The groove is deeper opposite the middle and ring than opposite the index and little fingers, and it is also unclosed above towards the wrist. A club laid in this groove rests primarily on the index and little fingers. The club may now be gripped by further flexing the second and third phalanges of all the fingers round it, and while this is being done the first phalanges may either remain flexed or else be fully extended (kept in line with the palm). If the club be gripped with the first phalanges flexed, it will be found that if at the same time the wrist be progressively flexed the grip gradually weakens, especially for the index. This weakness is due to the passive pull of the extensor muscles, the tendons of which come from the forearm and arm, and are so short that when the wrist is fully flexed they obtain slack by extending the first phalanges, and especially that of the index. Whenever the wrist must be fully flexed, the first phalanges of the fingers cannot be much flexed, and least of all that of the index. On the other hand, so long as the first phalanges are not flexed, the grip retains its power, even if the wrist be fully flexed. In tennis this of itself determines the form of many a stroke. In driving a golf ball the wrist should never be flexed in the swing, but at the end of the backward and beginning of the forward swing it must be well extended and abducted, and the description just given of the weakening of the grip in flexion of the wrist because of the passive pull of the extensors enables us to understand the less obvious weakening of the active hold of the long flexors of the fingers during strong extension and abduction, or, on the other hand, the limitation of extension and abduction of the wrist if the fingers be fully flexed.

The finger-grip just described is transverse, and so is ill adapted to the obliquity of the club. The hand can be made somewhat oblique by adduction of the wrist, but this is not enough. It has just been seen that if the first phalanx

of the index be extended it does not matter so much about those of the other fingers; it is enough if the club be securely gripped at the entry to the groove. We may therefore range the fingers with the index lowest (its first phalanx being extended) and the little finger highest (its first phalanx being flexed), in this way securing an oblique finger groove which, though open above, is well adapted to the obliquity of the club at the moment of impact.

The Palm.

In passing we may note that there is also a palm-grip, in which the club is laid across the "palm" of the hand and the fingers all close round it. This is more powerful than the finger-grip, but in golf, in which the ideal is sufficient range and suppleness without unnecessary force, this palm-grip has several drawbacks, since (a) the line of the fingers is not sufficiently oblique, (b) the phalanges have not so close a hold on the club, and (c) this hold is unstable if the wrist be well extended and abducted.

Apart from the thumb, then, the ideal is the oblique finger-grip described above, in which the club lies in a groove bounded at its entry by the three phalanges of the index and at its exit by the three phalanges, and more or less also by the ball of the little finger. With this grip (a) the fingers are adjusted to the obliquity of the club, (b) by elongating the groove the fingers gain in control of the club, (c) the encircling hold of each finger on the club is at its best, (d) the grip can be maintained in every posture of the wrist.

The Thumb.

We must now consider how this groove is closed in above and so converted into a tunnel by the thumb. The latter consists of two parts, the ball of the thumb and the thumb proper. The ball of the thumb is its "palm" part, while the thumb proper consists of the two phalanges. In studying the movements of the thumb it is well to have a neutral posture from which we may start, and for our present purpose we may begin with the posture of the thumb when the hand lies on its back at rest, in which case the thumb lies at some distance in front of the rest of the hand and points down and outwards from the wrist, the first phalanx being slightly flexed and slightly adducted (slightly bent towards its palm and slightly towards its inner side) and the second rather more flexed. Retaining the metacarpal in this posture we may now extend the two phalanges and so get the neutral position of the thumb. From this neutral position the metacarpal may be moved in two main planes and slightly also around its own long axis. The first plane bisects the back (nail to wrist) and also the palm of the thumb, and in this plane the whole thumb may be flexed and extended. The second plane is at right angles to the first, passing through the borders of the nail, and in this plane the thumb may be adducted and abducted (metacarpal and first phalanx). Lastly, the thumb (metacarpal and first phalanx) may be slightly rotated on a long axis so that its palmar aspect moves slightly towards either side. *Extension* (with abduction) is well seen in making as big a span as possible between the tip of the thumb and that of the little finger, *flexion* (with abduction and inward rotation) in opposing the thumb and the little finger, that is, in making the tips of these digits meet palm to palm, *abduction* (with extension and inward rotation) in parting the thumb and index in order to encircle a wide drinking vessel, *adduction* (with some flexion) in laying the thumb in line with and in front of the index, *rotation* (with other movements) in changing (a) from the flattened hand (in which posture the palm of the second phalanx of the thumb rests against the outer face of the first phalanx of the index, and the nail can scarcely be seen from the front) to full opposition with the little finger (in which posture the whole nail may be visible), (b) vice versa.

The Grip.

We are here concerned mainly with flexion, adduction, and abduction,† and it should be noted that these two sideward movements are relatively weak, whereas the palmward movement of flexion is strong. This has an important bearing on the thumb-grip. If the club be first gripped by the fingers as already described (oblique finger-grip), the thumb must take up one of the three main positions: (1) It may ride with the whole length of its palmar aspect applied to the club and its tip pointing downwards towards the head. (2) It may lie to its own side of the club with the palm of its two phalanges applied to the outer side and back of the index, and its outer side pressing on the club. (3) It may cross over the club and lie either with its palm on the outer border of the index and its inner border pressing on the club or else with its palm and inner border pressing on the back of the index and middle finger. In (2) the grip is unstable because the tunnel is closed only by the ball of the thumb, and at its entry the side pressure of the thumb is weak, and the openness of the tunnel allows too free movement towards the interval between the tip of the index and the

* In this paper the word *palm* is used in two senses, (1) the hand without the fingers; (2) the grasping side of the hand. Though unscientific, this cannot be avoided, without coining a new word, which I should be very loth to do.

† Note the important part played in abduction by the tensor of the palmar fascia (long palmaris).

ball of the thumb. In (3) the grip is more stable in that more use is made of the long flexor of the thumb, but the entry of the tunnel allows too free movement towards the web of the thumb and index, and again the wrist cannot be fully extended and abducted unless the long flexors of the fingers (which from this position act also as adductors of the wrist) are partially relaxed and so lose hold on the club. In (1), the grip is ideal because (a) the tunnel being prolonged the leverage is better and the club can be controlled with less effort; (b) the entry of the tunnel is closed (or at least, pressure is applied to the club) on three sides by the three phalanges of the index and on the fourth by the thumb; (c) the grip can be maintained in every position of the wrist without the fingers weakening their hold; (d) a certain degree of variation in the obliquity of the tunnel is left to the choice of the golfer, according to the type of his hand, or his personal preference, since, while the entry to the tunnel will vary little, its exit may be widened so that the club may lie either parallel to and in contact with the whole thumb and at some distance from the first phalanx of the little finger, or else in closer association with the little finger at some distance from the ball of the thumb at the exit of the tunnel.

The oblique finger-grip with riding thumb is the one which has been empirically evolved as the ideal. This empirical choice would appear to be justified on anatomical grounds.

Finger-grip v. Palm-grip.

The flexors and extensors of the hand modify its activities not only by means of voluntary contraction and relaxation, but also by their reflex tone. No muscle can act except within the limits imposed by (a) the lengthening and shortening of its belly, (b) the length and elasticity of its tendon. Differences in the correlation of these factors give rise to remarkable differences in the function of this part of the limb.

(a) With the arm hanging at the side it is impossible to support an unattached weight by the long flexors of the fingers without voluntary effort, but if the elbow be now flexed until the forearm is horizontal and the hand at rest on its back (the wrist being extended by the weight of the hand), the resting tension of the long flexors will keep the fingers so flexed that in this posture they will support some little weight (e.g., on the second phalanges) without being fully extended, and if the weight be sufficiently increased the fingers will become extended and the wrist will become flexed.

(b) In certain animals which live for the most part in trees, such is the hold of the long flexors on the phalanges that the whole body can be slung from a bough with little or no voluntary effort.

(c) Very young babies have a strong enough finger-grip to support the whole body for a few seconds. They have not yet developed the power of the thumb.

(d) In adults (in whom the power of the thumb has become fully developed) there is a distinct difference in the function of the finger-grip and that of the palm-grip. For a pull in one direction only (e.g., in stretcher-bearing or in boarding a moving tram-car) the finger-grip may be more useful, especially if the strain is prolonged and not otherwise too severe. On the other hand, when the immediate strain is very great, or, if the direction of the opposing force is liable to vary, the palm-grip with encircling thumb may be needed.

MIDWIFERY IN UGANDA.

WE have received a copy of a manual of midwifery written in Luganda—the language of the Baganda, the people of the Uganda Protectorate—by Dr. Albert R. Cook, senior physician, C.M.S., Mengo Hospital, Kampala, and Mrs. Cook, superintendent of the Maternity Training School, Namirembe. In an English preface the authors explain that since the rise of educational institutions in Uganda the need has become urgent for books written in the language of the people; the Baganda are described as having an extraordinary aptitude for learning, and the purpose of the book is to give an initial start in midwifery. The needs of Uganda in this connexion are sufficiently serious. From 17-20 per cent. of the natives are suffering from active venereal disease, and about 80 per cent. have at one time or another during their lives contracted syphilis. The Baganda are a fine race—Sir Harry Johnston has described them as “the Japanese of Central Africa”—and the threatened depopulation of their country is a thing to be averted. Statistics kept at Mango Hospital for more than 20 years show the following facts:—

(1) Two out of every three Baganda mothers have had syphilis—practically 66 per cent. (The rate for large towns in England has been put at men, 10 per cent., women, 5 per cent.)

(2) The ante-natal mortality is 67 per cent. in pregnant women suffering from syphilis.

(3) The deaths under 12 months old in Uganda are 330 per 1000 births (in England, 80 per 1000).

(4) Of every 100 conceptions in Baganda women, only 45 survive to the end of the first 12 months.

(5) Treatment in hospital, such as trained native midwives would easily be enabled to give, has already reduced this high mortality by three-quarters at different centres in the Protectorate.

(6) Given adequate support, in ten years' time a proper supply of trained native midwives should change a diminishing population to an increasing one.

Dr. and Mrs. Cook have worked in the Church Missionary Society's Hospital at Namirembe for 26 years, during which time they have always given simple teaching in midwifery, but definitely organised training was only begun in 1919, when a large maternity training school was opened; three contingents of trained midwives have already passed out and are doing useful work.

HEALTH CONDITIONS ON THE GOLD COAST.

AT the census taken in 1921 the population of the Gold Coast and dependencies was 2,078,043—an increase of half a million on the population in 1911. Europeans resident in the colony during 1921 comprised 768 officials, 1556 mercantile, 541 mining, and 74 missionary—total 2939. In the same year the number of births registered in the 16 registration areas were: European, 1; natives, 2962. And of deaths: Europeans, 32; natives, 2884. Although there was an increase in the population the number of deaths showed a decrease of 689—attributed to improved sanitary conditions in the larger towns. Pulmonary and intestinal diseases were the principal causes of death. The death-rate amongst Europeans was 10.88, and the invaliding rate 30.76 per 1000. During the year 2821 Europeans and 54,621 Africans were treated in the hospitals and dispensaries of the colony, as compared with 2898 and 55,687 respectively in the previous year. Treatment was given in 5946 cases of malaria, 710 of dysentery, 4 of yellow fever, 370 of pneumonia, 337 of tuberculosis, and 8 of sleeping sickness. Of 21 cases of blackwater fever treated 9 proved fatal, and 3 of the 4 cases of yellow fever resulted in death; 87,449 vaccinations were performed during the year, of which 58,073 were verified as successful. The rainfall varies with the configuration of the country; in 1921 it ranged from 34.43 inches at Accra to 88.13 inches at Axim. At Accra the mean shade temperature for the year was 79.84° F., at Coomassie 80.11°, and at Secondee 81.46°. The climate, though hot and damp, is cooler than that of most tropical countries situated in the same latitude. It is not in itself unhealthy, but an evil reputation has been earned for it in the past by the prevalence of mosquito-borne diseases, against which all possible precautions have constantly to be taken. The Gold Coast is peculiarly free from many of the discomforts associated with tropical countries; hot nights and intense heat by day are the exception rather than the rule, while insects are comparatively unobtrusive. The efforts of the medical and sanitary authorities in promoting the treatment of disease and the knowledge of general hygiene continue to exercise a beneficial effect on the general health of Europeans.

INSTRUCTION IN MOTHERCRAFT.

A SHEAF of 24 “Mothercraft Posters” has been brought out by Miss M. Olive Haydon (John Bale, Sons and Danielsson, Ltd. 7s. 6d.). These posters, printed in two colours in bold lettering for use in welfare centres, are arranged in calendar form on a wooden roller, each page containing a few short, simple rules on various aspects of child management, including character-formation, breast-feeding, sleep, clothing, diet, management of bowels, crying, colds, and vaccination. The advice given is uniformly good.—Two series of four-page leaflets entitled “Talks to Mothers,” by Sister Lily Skene (same publisher, 2d. each) are appearing in monthly instalments, one dealing with infant care, the other with character-training. The talks, while devoid of any pretensions to literary style, are simple and practical.

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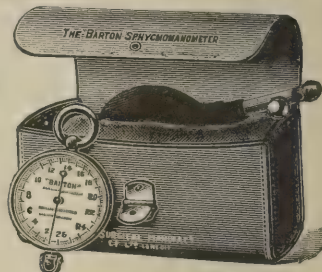
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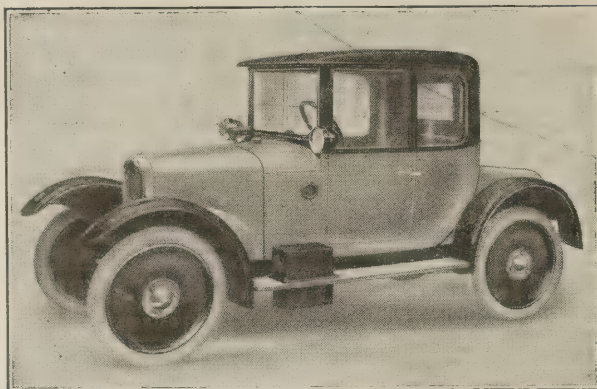
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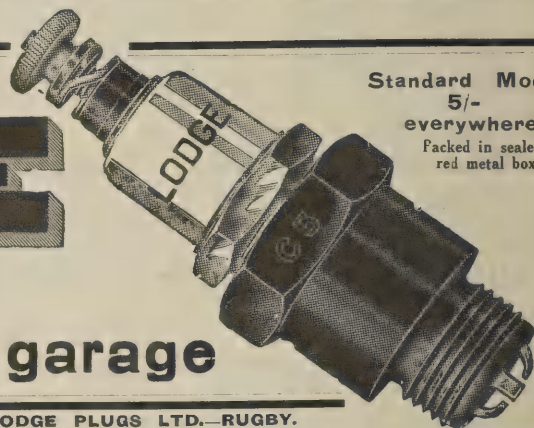
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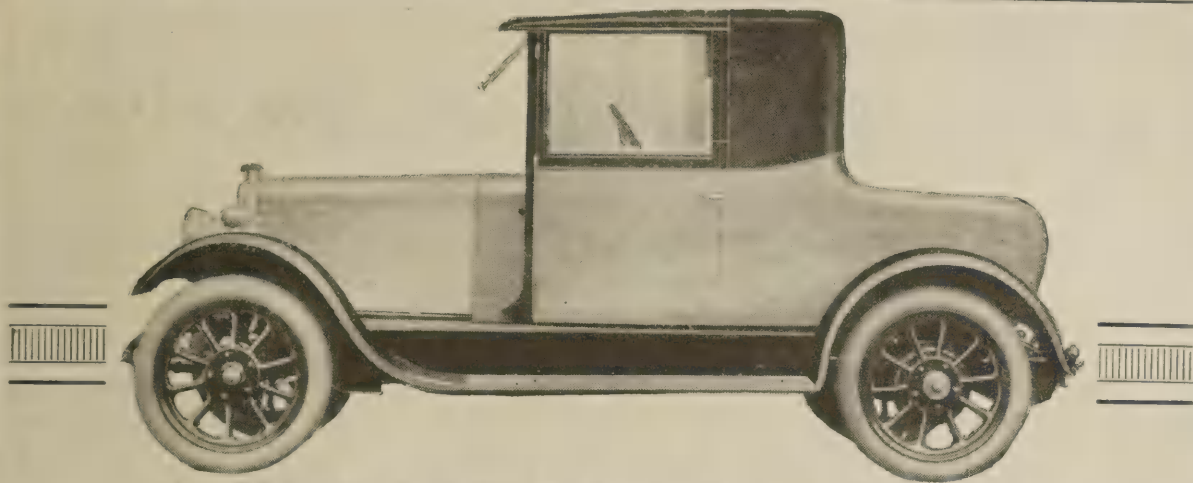
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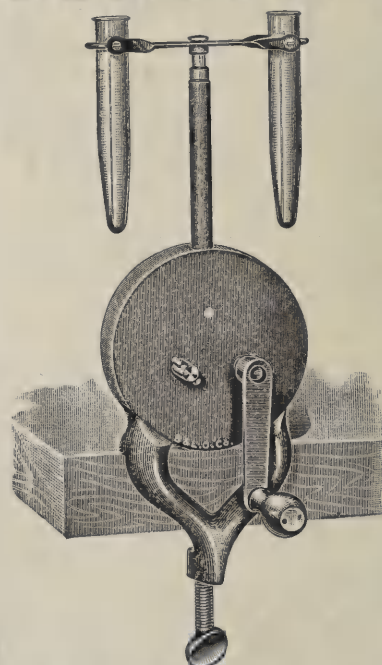
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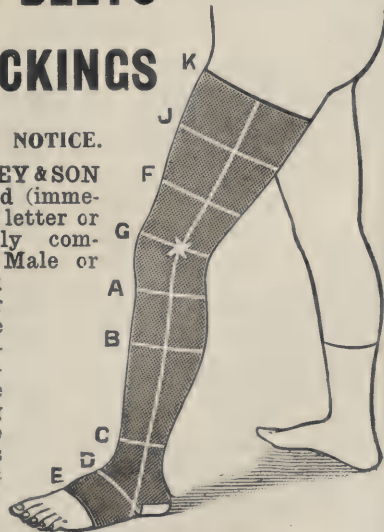
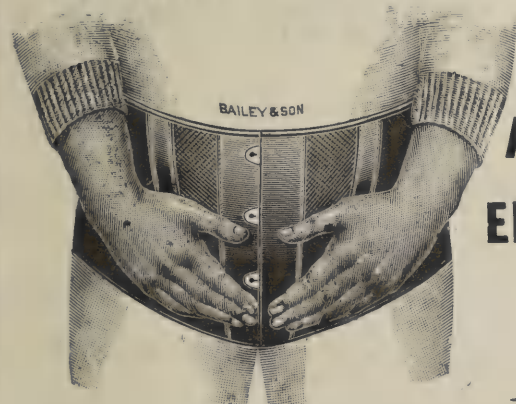
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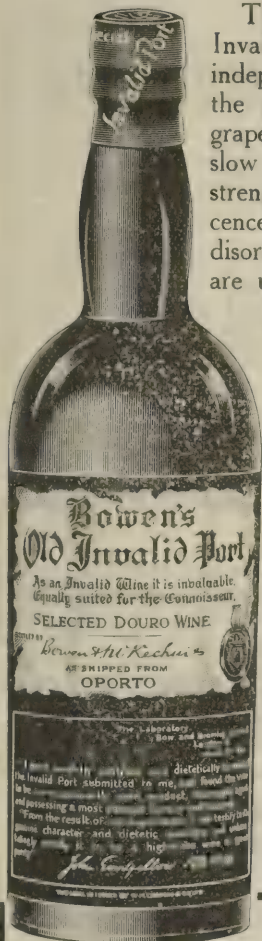
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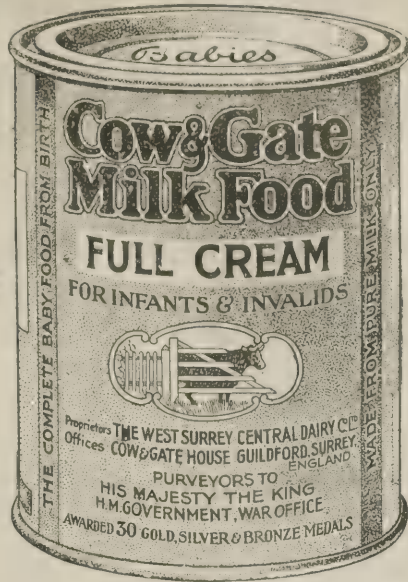
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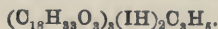
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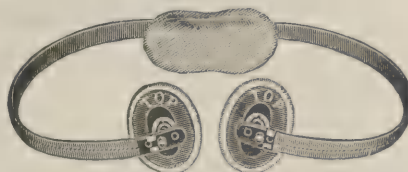
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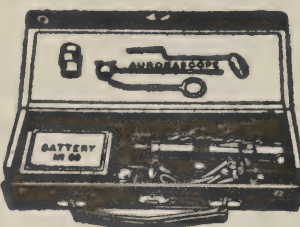


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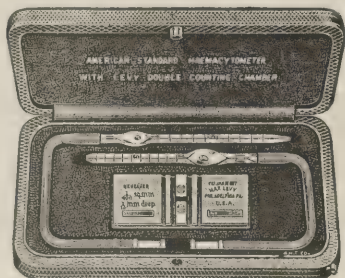
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(Formerly the EARLSWOOD ASYLUM.)

REDHILL, SURREY.

FOR THOSE REQUIRING CONTROL with EXPERT SUPERVISION and needing SPECIAL TRAINING in useful occupations. SCHOOLS, FARMING, and various TRADE WORKSHOPS.

RECREATIONS: ALL outdoor games, EXCELLENT BAND by Male Staff, for Concerts, Dancing, &c.

Apply: THE MEDICAL SUPERINTENDENT, Earlswood, Redhill, Surrey, or to the Secretary, Mr. HARRY HOWARD, 14-16, Ludgate Hill, E.C.4

Telephone: Redhill 344.

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SELECTED CASES admitted on reduced inclusive fees. THOSE UNABLE TO PAY admitted by votes of Subscribers, with part-payment towards cost.



BAY MOUNT, PAIGNTON, FOR TREATMENT OF ALCOHOLISM, DRUG HABIT & NEURASTHENIA.

Both Ladies and Gentlemen received.

Bay Mount stands in 3½ acres of secluded gardens and is charmingly situated, overlooking Torbay, near Torquay.

Every case is treated with a view to rapid and permanent cure.

Billiards, tennis, golf, and every kind of sport.

Excellent cuisine and every comfort.

Full particulars from the SECRETARY or STANFORD PARK, M.B., Ch.B., Resident Medical Superintendent.

Telephone: PAIGNTON 210.

INEBRIETY.

[Telephone: 16 Rickmansworth.

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars apply to F. S. D. Hogg, M.R.C.S., &c., Resident Medical Superintendent

MENDIP HILLS SANATORIUM

FOR THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS

Old-established, beautifully situated, 300 acres of Sanatorium grounds. Pinewoods and sheltered avenues. Altitude 850 feet. Extensive views. Separate chalets, with verandahs; hot-water radiators, and electric light in every room and chalet. Graduated Exercises. Inhalation. Electric treatment, &c. Individual attention.

Resident Physician—Dr. C. MUTHU.

For particulars apply SECRETARY, Hillgrove, Wells, Somerset.

THE DEESIDE SANATORIA IN SCOTLAND

FOR THE OPEN-AIR TREATMENT OF

PULMONARY TUBERCULOSIS and ALLIED DISEASES

At BANCHORY and MURTLE.

Medical Director - - - DAVID LAWSON, M.A., M.D., F.R.S.E.

These Sanatoria are situated amidst Ideal Surroundings in Middle Deeside, the reputation of whose Climate in the treatment of Lung Diseases is well established.

Both Institutions are well equipped with Research Laboratory, Throat Room, Dental facilities and powerful X-Ray Plant. Full Day and Night Nursing Staffs are employed.

Special Treatment by artificial Pneumothorax (with X-ray Control), the various Tuberculins, and Autogenous Vaccines, &c., is available without extra charge.



NORDRACH-ON-DEE

At BANCHORY, near BALMORAL.

Physician - - - DR. IAN STRUTHERS STEWART.

Assistant Physician - DR. J. C. LORRAINE.

For particulars apply Secretary.



TOR-NA-DEE' SANATORIUM

At MURTLE, ABERDEENSHIRE.

Senior Physician - - DR. J. M. JOHNSTON.

Assistant Physicians - DR. JAMES LAWSON & DR. A. C. FOWLER.

Inclusive terms 7 guineas a week.

For further particulars apply Secretary.

The Scottish Branch of the British Red Cross Society is prepared to contribute towards payment of the fees of ex-Officers and Nurses recommended by the Society, and such Officers and Nurses obtain priority of admission to TOR-NA-DEE.

Let Nature's gifts assist your patients

THERE can be no better or more certain health restorative after a trying illness than a course of modern Spa Treatment. 87 different natural mineral springs, vitalising air, glorious scenery and an extensive social programme. Such a combination is only obtainable at

Harrogate Britain's Famous Spa

A full Certificated Staff of Medically trained Attendants is maintained and all the waters are under the constant supervision of a highly trained Scientific Officer.

Special Complimentary Facilities are offered to members of the Medical Profession, in order that convincing proof of Harrogate's superiority over the continental Spas may be established.

Illustrated Brochure will be sent free on application to F. J. C. Broome, General Manager, Sulphur Wells Offices, Harrogate.

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MATLOCK. Established 1853.

Physicians: G. C. R. Harbinson, M.B., B.Ch.
R. MacLelland, M.D., C.M. (Edin.).

Prospectus and full information on application to the Managing Director.

PEEBLES HYDRO.

Beautifully situated 600 feet above sea level. Facing South, completely sheltered from North and East.
22 miles from Edinburgh.

All modern Baths, Douches, Massage and Electrical Treatments.
Resident Physician: K. R. COLLIS HALLOWES, B.A., M.B., B.Ch., B.A.O. IDEAL HEALTH RESORT.
Electric Light, Central Heating, Electric Lift, Three Billiard Tables, Ball Room, Winter Garden, Swimming Bath, Hard and Grass Tennis Courts, Croquet Lawn, Golf Course.
Prospectus from Manager.

NORTHAMPTONSHIRE SANATORIUM

CREATON, near Northampton.

Under the Management of the Committee of the Northampton Branch of the National Association for the Prevention of Tuberculosis.

Exclusively for Early Cases of PULMONARY TUBERCULOSIS, either sex. Private Patients are received at a charge from 2½ guineas a week.

Telephone: 9 CREATON. Apply to the MEDICAL SUPERINTENDENT.

The Pines AROSA Switzerland

Small English Pension run on Sanatorium lines.

Apply Mrs. DONNER (late of Villa Gentiana)

Reference by permission to Dr. E. C. MORLAND.

PALACE SANATORIUM, MONTANA-SUR-SIERRE, SWITZERLAND.

TUBERCULOSIS CURE STATION

(All the Year). THE FINEST IN EUROPE.

5000 ft. high. Accommodation for 100 patients.

Principal Resident Medical Officer:

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Late Physician to the Queen Alexandra Sanatorium,
Davos Platz.

FULL PARTICULARS FROM THE SECRETARY, 5, ENDSMEIGH GARDENS, LONDON, N.W. 1.

DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE. LOVELY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLLYER, 48, Spa Enquiry Offices, Droitwich (Worcs.) SPECIAL FACILITIES TO MEDICAL MEN.

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SWISS ALPINE HEALTH RESORT.

ALTITUDE 6,000 FEET.

All Forms of Tuberculosis, Bronchitis, Asthma, Neurasthenia, etc.

ILLUSTRATED PROSPECTUS GRATIS FROM THE KURDIREKTION



YARROW CONVALESCENT HOME, BROADSTAIRS. FOR CHILDREN OF WELL-EDUCATED PEOPLE OF VERY LIMITED MEANS.

Charge, 10s. per week for each Child.

This fee is subject to addition or deduction according to Parents' means.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14.

The usual stay is 4 weeks, but some wards are reserved for serious cases requiring special treatment, and for these a lengthened stay may, under some circumstances, be granted, and the age limit raised to 14 for Boys and 16 for Girls.

The Home faces the sea, and is open all the year, being as well adapted for winter as for summer residence.

Particulars can be obtained from the SECRETARY, 116, VICTORIA ST., WESTMINSTER, LONDON, S.W.1.

EPILEPSY.

Colthurst House School,

Warford, Alderley Edge.

Under the Management of the Committee of the David Lewis Colony.

Home Life, Medical Care, School Education, most suitable for boys subject to Epilepsy. Terms 42s. weekly.

Further particulars may be obtained from Dr. ALAN McDUGALL, The Colony, Warford, Alderley Edge.

EPILEPSY. THE DAVID LEWIS COLONY

Stands in its own grounds of 180 acres and is situated in a beautiful part of Cheshire, 2½ miles from Alderley Edge Station, and 14 miles from Manchester. Electric light throughout. The Colony system ensures the social life and employment most suitable for those who suffer from Epilepsy. Patients certifiable under the Lunacy or Mental Defectives Acts are NOT ELIGIBLE for admission. Two Resident Physicians. Terms for Middle- and Upper-class Patients, from 42s. a week upwards, according to accommodation and requirements. Private rooms can be provided.

For further information apply to the Director, Dr. ALAN McDUGALL, Warford, near Alderley Edge, Cheshire.

ASHWOOD HOUSE

KINGSWINFORD, STAFFORDSHIRE.

An old established home-like Institution for the treatment of MENTAL AFFECTIONS in BOTH SEXES.

Full particulars as to reception terms, &c., may be obtained from the Resident Medical Officer.

Home

FOR THE CARE AND TREATMENT OF

Mentally Afflicted Ladies

OTTO HOUSE,

47, North End Road, West Kensington, W. 14.

The Home stands in large grounds close to West Kensington Station.

For Terms, apply to Miss BRODIE, Resident Lady Superintendent.

Telephone: Hammersmith 1004.

Mrs. SUTHERLAND (Licensed Proprietress).

THE GRANGE, Near ROTHERHAM.

A HOUSE licensed for the reception of a limited number of ladies of unsound mind. Both certified and voluntary patients received. This is a large country house with beautiful grounds and park, five miles from Sheffield. Station, Grange Lane, G.C. Railway, Sheffield. Telephone No. 34 Rotherham.

Resident Physician—GILBERT E. MOULD, L.R.C.P., M.R.C.S. Consulting Physician—CROCHLEY CLAPHAM, M.D., F.R.C.P.E.

CLARENCE LODGE

CLARENCE ROAD, CLAPHAM PARK

A limited number of Ladies suffering from MENTAL & NERVOUS DISORDERS are received for treatment under a Specialist.

The house stands in large grounds.

For further particulars see Illustrated prospectus from the Proprietress, Mrs. THWAITES. Telephone: Brixton 494

THE CHESTNUTS,

St. Pauls Cray Road, CHISLEHURST.

HIGH-CLASS HOME FOR MENTAL AND MEDICAL PATIENTS

Large house, own grounds, strictly private, high, healthy, adjoining 300 acres noted woods and commons.

Individual attention given by fully trained staff under Lady Superintendent (fully trained and well-known to London Specialists).

Telephone: 154 Chislehurst. Station: Chislehurst, S.E. & C.R.

Apply, Lady Superintendent—Mrs. Armstrong.

LITTLETON HALL, BRENTWOOD, ESSEX

(18 MILES FROM LONDON.)

400 feet above sea.

HOME for few LADIES Mentally Afflicted. Large grounds. Liverpool-st. 26 min. Stations: Brentwood, Shenfield, one mile. Boarders received. Apply Dr. Haynes. Telephone and Telegrams: Haynes Brentwood 45.



BARNWOOD HOUSE

HOSPITAL FOR MENTAL DISEASES,

BARNWOOD, near GLOUCESTER.

Telephone: No. 7 Barnwood.

Exclusively for PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES.

This institution is devoted to the Care and Treatment of persons of both sexes at moderate rates of payment.

Voluntary boarders not under certificates are admitted.

Under special circumstances the rates of payment may be reduced by the Committee.

The MANOR HOUSE for Ladies only, which is entirely separate from the Hospital and standing in its own grounds, will be utilised exclusively for voluntary patients.

For further information apply to ARTHUR TOWNSEND, M.D., the Medical Superintendent.

Telegraphic Address : "Relief, Old Catton." Telephone : "290 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.—

A High-class Home for the Curative Treatment of Nervous Affections. Voluntary Boarders are also received without certificates.

For full particulars apply to the Misses McLINTOCK, or to Dr. S. BARTON, 34, Surrey-st., Norwich, Visiting Physician.

St. Chad's Hospital

(FOR PAYING PATIENTS),
Birmingham.

This Hospital provides Medical and Surgical treatment for patients whose means are limited. The conditions of admission will be obtained on application to the undersigned.

DAVID J. RICHARDS, House Governor.

City of London Mental Hospital,

Dartford, Kent. Under the Management of a Committee of the Corporation of the City of London.—PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.

Apply to the Medical Superintendent.

Saint Luke's Hospital.

Established 1751.

At a BRANCH HOME, in 150 acres, thirty minutes from London, a few LADIES are received as Voluntary Patients, suffering from mild Mental and Nervous illness. Terms from £4 4s. per week.—Apply, Secretary, 19, Nottingham-place, London, W. 1. (Tel.: Mayfair 5420.)

Bucks Mental Hospital,

Stone, near Aylesbury.

The Visiting Committee of this Hospital can receive PRIVATE PATIENTS at a minimum weekly charge of 1½ guineas.

Apply to the Medical Superintendent.

Grove House, All Stretton, Church

STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.

Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

Dorset Mental Hospital,

Herrison, Dorchester.

The Visiting Committee of this Hospital can receive PRIVATE PATIENTS at HERRISON HOUSE, delightfully situated in the grounds of 350 acres.

Terms from 2½ guineas. Apply to the Medical Superintendent.

St. Michael's, Broadstairs.—A

charming Country HOUSE, beautiful garden, South aspect, close to sea, where Invalids are received for Rest, Care, or Convalescence. Accommodation for Spinal Cases. Excellent cooking. Moderate charges.—Apply, Miss Gertrude Fletcher, R.R.C.

Doctor can receive Patient or Guest

in charming Residence. Nurse masseuse, &c. Good staff of servants.—Dr. Meyrick, 48, Ennismore-gardens, S.W. 7. Telephone : 2130 Kensington.

TO DOCTORS AND SPECIALISTS.

Well-appointed Residential House

at 121, Sloane-street takes slight Invalid Cases (not infectious) with nurses and where relations can stay. Modern comfort; first-class cuisine.—Managing Proprietor, A. V. de Cordes. Tel.: Victoria 9836.

Neurasthenic, Rest Cure, and Chronic

CASES are received from 5 guineas weekly in Doctor's Country Home. Golf, tennis, &c. Own poultry, fruit and vegetables. Tel. 194 Chertsey.

Apply, Dr. Alexander, Harcourts, Chertsey.

ELMSLEIGH, BASSETT, SOUTHAMPTON.

FUNCTIONAL NEUROSES, NERVOUS BREAKDOWN, CERTAIN CASES OF DRUG AND ALCOHOL HABIT, AND CASES NEEDING REST, NURSING, AND DIETING.

Doctor receives a few such in his

comfortable house, ideally situated amidst large gardens and in quiet surroundings. Modern conveniences. Billiards, golf, tennis, and other recreations. Personal attention and modern therapeutic measures.

Medical men invited to apply Secretary for particulars.

The Miller General Hospital for

SOUTH-EAST LONDON, Greenwich-road, S.E. 10.

HOUSE PHYSICIAN required (three other residents) to commence duty on August 1st. Salary £150 per annum, with board, lodging, and laundry. Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary.

East London Hospital for Children

AND DISPENSARY FOR WOMEN, Shadwell, E. 1.—

Applications are invited for Part-time PATHOLOGIST to attend daily. Candidates must be duly registered. Salary £400 per annum, with lunch or tea. Appointment will be for one year renewable.

Applications, with not more than three recent testimonials, must reach the undersigned not later than July 14th.

W. M. WILCOX, Secretary.

Royal Free Hospital, Gray's Inn-

road, W.C. 1.—Applications are invited from duly qualified

and registered Medical Men or Women for the following resident post, vacant 1st August, 1923:—

HOUSE PHYSICIAN.

Intending candidates should submit applications, stating age, accompanied by copies of three recent testimonials, to the undersigned on or before the 7th July, 1923.

REGINALD R. GARRATT, Secretary.

The Hospital for Women,

Soho-square, W. 1.

A vacancy having occurred in the office of ASSISTANT ANÆSTHETIST to the Hospital, applications are invited for the post. Candidates must be registered Medical Practitioners and must submit their applications in writing, with testimonials, to the undersigned not later than Saturday, the 14th July.

The appointment is honorary, but an allowance of 10 guineas a year is made for travelling expenses.

ALFRED HAYWARD, Secretary.

Queen Mary's Hospital for the

EAST END, E. 15.

CASUALTY OFFICER.

Applications are invited for the above post from fully qualified men. Salary £150 per annum, full board, residence.

The Hospital contains 154 Beds and has Maternity, Ear, Nose and Throat, Ophthalmic, and other Special Departments.

Applications, accompanied by copies of testimonials, must reach the undersigned not later than Wednesday, the 4th July.

RAPHAEL JACKSON (Major), Secretary.

Queen Mary's Hospital for the

EAST END, E. 15.

Applications are invited for the post of HONORARY MEDICAL OFFICER in charge of the Radio-Electro-Therapeutic Department.

For further particulars apply to the Secretary.

Applications should be at the Hospital on or before 13th July 1923.

RAPHAEL JACKSON (Major), Secretary.

Metropolitan Borough of Wandsworth.

HOLIDAY DUTY.

A Full-time LOCUM is required to carry out duties in connection with the Council's Tuberculosis Dispensaries during the months of August and September, at a fee of 10 guineas per week.

Experience in the diagnosis and treatment of Tuberculosis is essential. Apply to the Medical Officer of Health, 79, East-hill, Wandsworth, S.W. 18.

22nd June, 1923.

South London Hospital for Women.

The Board of Management invite applications from fully qualified Medical Women for the appointment of CLINICAL ASSISTANT in connection with the Department under the Public Health (Venereal Diseases) Regulation Act, 1916, to attend on Tuesday evenings and Wednesday mornings. Honorarium £1 1s. per attendance.

Applications, with copies of testimonials, to reach the Secretary at the Hospital, South Side, Clapham Common, S.W. 4, not later than the first post on Thursday, July 5th.

City of London Hospital for

DISEASES OF THE HEART AND LUNGS,

Victoria Park, E. 2.

(Bus, tram, and train, Cambridge Heath, G.E.R.)

Applications for the post of RESIDENT MEDICAL OFFICER (Male) (with copies of three testimonials) are invited to be sent to the undersigned on or before Tuesday, 17th July, 1923. The appointment will be for one year from the beginning of August, with eligibility for re-appointment and subject to the rules and bye-laws of the Hospital. Salary at the rate of £250 per annum, with board, residence, and laundry provided.

GEORGE WATTS, Secretary.

Royal Naval Medical Service.

SHORT SERVICE SCHEME.

The Admiralty are prepared to accept applications for entry as SURGEON-LIEUTENANTS for Short Service in the Royal Navy.

Period of Service	Three years, with option to extend for further twelve months.
Pay	26s. 6d. per diem, or £483 12s. 6d. per annum.
Gratuity on Discharge ..	£8 6s. 8d. for each completed month of service, or £100 per annum.
Equipment Allowance ..	£50, payable on joining.
Age of Candidates	Not to exceed thirty years.

Surgeon-Lieutenants on the Short Service Scheme will be considered for transfer to the Permanent Service under certain conditions after six months' service.

Regulations for entry and form to be filled by candidates will be supplied on application to the Medical Director-General, 68, Victoria-street, London, S.W. 1.

Locum required for London Tuberculosis Dispensary during July. Terms 6 guineas per week.—Address, No. 116, THE LANCET Office, 423, Strand, W.C. 2.

Western Dispensary, 38, Rochester-row, S.W. 1.—Vacancy on the Staff of Attending Medical Officers. Applications, with testimonials, to be sent to the Secretary not later than Monday, July 9th. Candidates to attend at the Dispensary on Wednesday, July 11th, at 4 P.M.

London Jewish Hospital, Stepney Green, E. 1.—A vacancy has arisen in the post of HONORARY ASSISTANT ANÆSTHETIST. Applications, accompanied by copies of three recent testimonials, should be sent to the Secretary, from whom further particulars can be obtained.

Metropolitan Ear, Nose and Throat Hospital (1838) (Incorporated), Fitzroy-square, W. 1.—NON-RESIDENT HOUSE SURGEON. Part-time appointment. Salary at the rate of £150 per annum. Applications, with three recent testimonials, to be forwarded to the undersigned, from whom further particulars may be obtained. L. L. PHILLIPS, Secretary.

St. Bartholomew's Medical College.

DEMONSTRATOR OF BIOLOGY.

The post of Demonstrator of Biology will be vacant shortly. Particulars may be obtained from the DEAN of the Medical College, St. Bartholomew's Hospital, E.C., to whom applications and testimonials should be sent before July 20th, 1923.

The Infants Hospital, Vincent-square, Westminster.—The Committee of Management invite applications for the post of PATHOLOGIST (Resident or Non-resident). Applications, with copies of not more than three testimonials, must be sent to the undersigned, from whom further information may be obtained. ALFRED J. SMALL, Secretary.

The Belgrave Hospital for Children, Clapham-road, S.W. 9.

The Committee of Management invite applications for the post of HONORARY RADIOLOGIST. The post carries with it an honorarium of 50 guineas per annum for two attendances per week. Applications, with copies of testimonials, should be sent to the undersigned not later than Monday, 16th July, 1923. THOMAS CLAPHAM, Secretary.

County of London.

The London County Council invites applications for the appointment of SEVENTH ASSISTANT MEDICAL OFFICER in the LONDON COUNTY MENTAL HOSPITAL SERVICE. Candidates must be not more than thirty-five years of age and must be registered to practise both in Medicine and Surgery in England.

Candidates appointed will be pensionable under the Asylums Officers' Superannuation Act, 1909. Preference will be given to candidates who served, or offered to serve, with H.M. Forces.

Salary £300 a year, rising by annual increments of £25 to £400 a year, without emoluments; also, at present, temporary additions to salary amounting to from £140 to £168 a year. Charges made for board, lodging, &c. (at present £2 9s. weekly).

Full particulars and conditions of appointment on form of application (on which alone application can be made), obtainable from the Chief Officer, Mental Hospitals Department, County Hall, Westminster Bridge, S.E. 1. Canvassing disqualifies.

JAMES BIRD, Clerk of the London County Council.

Salford Royal Hospital. (260 Beds.)

The Board of Management invite applications for the appointment of HONORARY DENTAL SURGEON, which is now vacant.

Candidates must be registered under the Dental Act. Applications, with testimonials and certificates of age and registration, to be delivered to the undersigned without delay. By order of the Board.

GEO. RUDDLE, General Superintendent and Secretary.
June 25th, 1923.

Bristol Dispensary.—The Committee

are prepared to appoint a NON-RESIDENT MEDICAL OFFICER on the Staff of this Institution.

Candidates must be duly registered according to the provisions of the Medical Acts, and not over the age of thirty-five.

The gentleman appointed will be required to commence his duties about September, and must give his whole time to the service of the Institution in such a way as may be directed.

At the end of the first year of service the Committee may give permission for private practice.

For salary and other particulars, apply to the Secretary, to whom testimonials must be sent on or before July 10th.

Card with address should be enclosed. H. MERRETT STOCK, Secretary.

Albion Chambers, Bristol.

Applications are invited from qualified

Medical Men for the post of MEDICAL SUPERINTENDENT of the EAST LANCASHIRE TUBERCULOSIS COLONY, Barrowmore Hall, Great Barrow, near Chester. Candidates are required to have experience in the institutional treatment of Tuberculosis, and preference will be given to one with experience in the organisation of employment for Tuberculous patients. Salary £800 per annum, with house, light, and fuel.

The Colony is provided by the East Lancashire Joint County Committee of the Order of St. John and the British Red Cross Society, under whose direction the Medical Superintendent will work.

Applications, enclosing copies of three recent testimonials, stating age, experience, qualifications, &c., should be addressed to the Secretary, East Lancashire Joint County Committee, 3, St. James's-square, Manchester, not later than July 18th.

Royal Berkshire Hospital.—The

Board of Management invite applications for the appointment of an HONORARY PHYSICIAN. Candidates must be Fellows or Members of the Royal College of Physicians of London or Medical Graduates of one of the Universities of Great Britain or Ireland, and must be registered. Preference may be given to candidates who fulfil the conditions laid down in the rules governing the Membership of the Royal College of Physicians of London on the 14th November, 1911.

The elected candidate will be appointed for the period ending on the third Tuesday in January, 1924, and will be eligible for re-election.

Canvassing by, or on behalf of, a candidate will disqualify him.

Candidates are required to provide sixty-five copies of their applications and testimonials, which must be addressed to the Secretary and reach him not later than July 7th, 1923. No testimonials will be required from candidates who are members of the existing medical staff.

The election will be held on July 17th, 1923.

By order. HERMAN BURNLEY, Secretary.

Reading, 26th June, 1923.

Oldham Royal Infirmary.—Applica-

tions are invited for the following posts vacant on July 1st, 1923:—

1. HOUSE SURGEON to Casualty, Out-patient, and Special Departments.

2. HOUSE SURGEON to Women's and Children's Wards.

3. HOUSE SURGEON to Men's Wards.

Salary £200 in each case, with board, residence, and laundry. Appointments tenable for six months, with eligibility to apply for one or other posts not previously held.

Applications marked "House Surgeon," stating age, experience, and nationality, with copies of three recent testimonials, to be submitted forthwith to the undersigned.

CHARLES D. DRAKE, General Superintendent.

Royal Salop Infirmary, Shrewsbury.

Containing 130 Beds.—HOUSE PHYSICIAN required at once. Candidates must be duly registered under the Medical Acts. British and unmarried. (Ladies ineligible.)

Salary at the rate of £160 per annum, with board, residence, and laundry.

The duties consist of being responsible to the Medical Staff for the Medical cases, assisting the Pathologist, and acting as Anæsthetist.

Preference given to those with previous experience as Anæsthetist.

The House Physician is the Junior Resident Officer.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials (not less than three), to be sent to the undersigned forthwith.

26th June, 1923.

ALFRED SUGDEN, Secretary.

County Borough of Southampton.

ASSISTANT MEDICAL OFFICER OF HEALTH.

The Corporation invite applications for the position of Assistant Medical Officer of Health at a salary of £500 per annum, to carry out duties in connection with the Port, including the operation of the Aliens Order, 1920, regulations under the Public Health (Regulations as to Food) Act, 1907, and the regulations with respect to Cholera, Yellow Fever, and Plague, &c.

Preference will be given to candidates with some experience in Port Sanitary work, Infectious Fevers, and the treatment of Venereal Disease.

The appointment will be subject to the approval of the Ministry of Health.

The gentleman appointed will be required to devote the whole of his time to the duties of the office and to act under the direction of the Medical Officer of Health.

Forms of application may be obtained from the Medical Officer of Health, Municipal Offices, Southampton.

Applications on the prescribed form, endorsed "Assistant Medical Officer of Health," and stating age, qualifications, experience, &c., together with copies of not more than three recent testimonials, must be delivered at the Town Clerk's Office, Municipal Offices, Southampton, before noon on the 7th July proximo.

22nd June, 1923.

R. R. LINTHORNE, Town Clerk.

Salford Union Infirmary,

Hope, Pendleton, near Manchester.

THIRD ASSISTANT RESIDENT MEDICAL OFFICER (MALE).

FOURTH ASSISTANT RESIDENT MEDICAL OFFICER (FEMALE).

The Guardians of the Salford Union are prepared to receive applications for the above appointments.

Candidates to be eligible must be unmarried, registered under the Medical Acts, and possess a Medical and Surgical qualification. Preference will be given to candidates with experience of Poor-law or General Infirmarys and possessing experience of X-Ray and Electrical work.

The salary for each appointment is £200 per annum, with furnished apartments, attendance, and rations at the Infirmary.

The appointments, which will be subject to the approval of the Ministry of Health, will be made, in the first instance, for six months. The Guardians expect the persons appointed to remain for this period and to devote their whole time to the duties, and also to act as may be directed by the Medical Superintendent as respects the Union Infirmary and other Institutions of the Union.

The Infirmary contains about 910 beds, is well equipped, and provides excellent all-round clinical experience of all classes of Surgical, Medical, and Children's Diseases, a large proportion of which are of an acute nature.

Applications, stating age, qualifications, and experience, and accompanied by copies of not more than three recent testimonials (which will not be returned), should reach me as early as possible, but not later than 9 A.M. on Tuesday, the 10th July, 1923, endorsed "Third (or Fourth) Assistant Medical Officer."

Canvassing the Guardians will disqualify.

By order.

E. H. INCHLEY, Clerk to the Guardians.
Poor-law Offices, Eccles New-road, Salford.
20th June, 1923.

County of Essex.

HALSTEAD AND BELCHAMP UNITED SANITARY DISTRICTS.

Applications are invited for the following appointments:—

(a) MEDICAL OFFICER OF HEALTH for a district comprising the areas of the Halstead Urban Halstead Rural and Belchamp Rural District Councils.	
Salary per annum	£233
(b) ASSISTANT COUNTY MEDICAL OFFICER for the same district.	
Salary per annum	£167
	£700

Actual travelling expenses will be allowed.

The appointments are subject to the approval of the Ministry of Health and subject to the conditions set out on the front page of the application form. Applicants will be required to devote their whole time to the duties of the offices.

Applicants must be duly qualified Medical Men with experience in the treatment of Tuberculosis, holding a Diploma of Public Health, and should not be over forty-five years of age.

Applications on the prescribed form (which may be obtained from the undersigned John H. Goold), accompanied by copies of not more than three recent testimonials, which will not be returned, should be addressed to the said John H. Goold, and delivered at the Shire Hall, Chelmsford, not later than the 9th day of July, 1923.

Canvassing is forbidden.

JOHN H. GOOLD,
Shire Hall, Chelmsford.
Clerk of the County Council.
S. R. LONG,
Clerk of the Halstead and Belchamp United Districts Joint Committee.
Union Office, Halstead. 25th June, 1923.

Gloucester County Mental Hospital.—

Medical LOCUM TENENS required for about four months. Salary £7 7s. weekly, all found.

Apply, with references, age, &c., to the Medical Superintendent.

Macclesfield General Infirmary.—

SECOND HOUSE SURGEON.—Applications are invited for the above post. Salary £150 per annum, with residence, board, and washing. Candidates must be doubly qualified and registered and one with experience in Orthopaedic work and Refraction would be specially considered.

Applications, with copies of testimonials, to be sent to the undersigned.

A. E. HANRAHAN, Secretary.

South Devon and East Cornwall

HOSPITAL, Plymouth.—The Committee invite applications for the appointment of a qualified HOUSE PHYSICIAN to commence duties on 12th August, 1923. The duties comprise Medical, Surgical, and Anaesthetic work. Salary £100, with board, residence, and washing.

Candidates should send copies of not more than three testimonials on or before 4th July, 1923, to Plymouth, June 16th, 1923.

P. J. LANGDON, Secretary.

Ancoats Hospital, Manchester.—

HOUSE SURGEON required to commence duty on 1st August next. Appointment for twelve months. Salary for the first six months at the rate of £100 per annum and for the second six months at the rate of £150 per annum. Applications, stating age, experience, and qualifications to be forwarded to the undersigned, with copies of not more than three recent testimonials, not later than Monday, 2nd July, 1923.

By order of the Board.

HERBERT J. DAFFORNE, Secretary.

Birmingham and Midland Hospital

FOR SKIN AND URINARY DISEASES, John Bright-street, Birmingham.—The Hospital is prepared to appoint an ASSISTANT in the Radiological Department, with a view to subsequent reappointment as Assistant Radiologist to the Hospital.

Applicants must be fully qualified medically. Daily attendance required. An honorarium will be offered.

Applications, giving full particulars of qualifications, experience, &c., with copies of testimonials may be sent at once to the Hon. Secretary of the Medical Committee at the above-named address.

HUBERT SUMNER, Secretary.

Borough of Bromley.

ASSISTANT MEDICAL OFFICER OF HEALTH.

The Town Council of Bromley invite applications from Ladies or Gentlemen, whose age should not exceed forty years, for the appointment of Assistant Medical Officer of Health, whose principal duties will be to conduct the School Medical Service under the supervision of the Medical Officer of Health, and otherwise to assist generally in the Medical Service of the Borough.

Commencing salary (inclusive) £500 per annum.

Candidates should have had experience in (1) Refraction: (2) Anaesthetics: (3) Gynaecology, and the possession of the Diploma of Public Health will be a recommendation.

Forms of application can be obtained and must be returned, accompanied by copies of three recent testimonials, to the undersigned not later than Friday, 6th July, 1923.

Canvassing will be considered a disqualification.

FRED. H. NORMAN, Town Clerk.

Municipal Offices, Bromley, Kent. 20th June, 1923.

Birmingham Union.

MONYHULL COLONY FOR EPILEPTICS AND FEEBLEMINDED.

ASSISTANT RESIDENT MEDICAL OFFICER.

The Guardians invite applications from duly qualified medical practitioners for the appointment of Assistant Resident Medical Officer at Monyhull Colony, accommodating at present 580 patients on the Adult Section and 350 patients on the Children's Section, which is certified by the Board of Education as a Special Residential School under the Elementary Education (Defective and Epileptic Children) Acts. Included in the total number are 200 patients certified under the Mental Deficiency Acts.

Candidates must not be more than thirty-five years of age and must have had experience with mental cases. The person appointed will be required to work under the control of the Medical Superintendent and assist him in administrative as well as medical duties.

The person appointed will be a whole-time official and the appointment will be subject to the provisions of the Poor Law Officers' Superannuation Act, 1896.

The commencing remuneration will be £400 per annum, and residential emoluments will be provided consisting of a furnished house, board, and laundry, such emoluments being valued at £130 per annum for superannuation purposes.

Applications, stating age, qualifications, and experience, and accompanied by copies of not more than three recent testimonials, should be sent to me at once. Canvassing strictly prohibited.

JAMES CURTIS, Clerk to the Guardians.

Union Offices, Edmund-street, Birmingham.

June 21st, 1923.

The Royal Infirmary, Sunderland.

(240 Beds.)—Wanted, HOUSE SURGEON (Male), to commence duties about the end of July. Salary £160 per annum, with board, residence, and laundry. State age and qualifications, and submit copies of three recent testimonials by not later than July 5th to S. C. FRYERS, Secretary.

County Mental Hospital, Prestwich.

Manchester.—LOCUM TENENS required from one to three months. Salary £8 8s. per week, with board, furnished apartments, attendance, and washing. Apply, stating full particulars, to the Medical Superintendent.

North Devon Infirmary, Barnstaple.

Wanted end of July, duly qualified HOUSE SURGEON. Salary £170 per annum, with board, apartments, and laundry. Appointment to be for not less than six months. Applications, stating age, qualifications, with copies of testimonials, to be sent in on or before Monday, July 16th, addressed Hon. Secretary.

Ingham Infirmary, South Shields.—

Wanted, JUNIOR HOUSE SURGEON (Male). Salary £150 per annum, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in Medicine and Surgery. The appointment will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained. JOHN POTTER, Secretary.

Essex County Hospital, Colchester.

(120 Beds.)—Wanted, applications for combined post of ASSISTANT HOUSE SURGEON and REGISTRAR (Male). Salary £150, with board, washing, and residence. Medical and Surgical qualifications required. Applications, with three recent testimonials, to be sent before Friday, 6th July, to ALFRED G. BUCK, Secretary.

Tunbridge Wells General Hospital.—

Wanted, HOUSE SURGEON. Candidates must be unmarried and duly qualified in Medicine and Surgery. (Two residents.) Vacant now. 86 Beds. Surgical cases largely predominate. Major operations 700 yearly. V.D. Clinic. Salary £160 per annum, with board, residence, &c., in the Hospital.

This Hospital is approved by the University of London for the purpose of the M.D. and M.S. Examinations.

Applications, stating qualifications, with certificates of registration and copies of testimonials, should be sent to the undersigned on or before July 7th next. J. J. WEBB, Secretary.

Junior (Male) Resident Medical Officer

wanted for PERTH ROYAL INFIRMARY. Salary £150 per annum, with board and residence. Duty will start 1st August. Apply, with references, to Mr. J. C. Cameron, Solicitor, 2, Charlotte-street, Perth, not later than 9th July, 1923.

West African Medical Staff.

Vacancies now exist in the grade of MEDICAL OFFICER in the West African Medical Staff. Salary £660 per annum, rising by £30 annually to £720 during the three years period of probation; then, if confirmed in the appointment, the salary is £720, rising by £40 annually to £920, with seniority allowance of £72 per annum.

Quarters free of rent are provided; also passages to and from West Africa. Private practice is permitted but is in the majority of stations not of much value. Prospects of promotion to the senior grades. Preference will be given to candidates under thirty-five years of age. Full particulars as to pay and pension, and forms of application may be obtained from the Assistant Private Secretary (Appointments), Colonial Office, from whom particulars of vacancies in other Colonial Services may also be obtained.

The Barbados General Hospital.**WANTED.**

A duly qualified Medical Practitioner as JUNIOR RESIDENT SURGEON of the Barbados General Hospital. A man who has had experience in administering Anesthetics preferred.

Salary £250 per annum, to which there is at present added a temporary war bonus of 20 per cent., with furnished quarters.

Applications, accompanied by professional and other testimonials, stating age and date of graduation, will be received by the Steward and Secretary of the General Hospital up to 12 o'clock noon on Wednesday, August 8th, 1923.

Canadian Graduates must be registered in a province, registration in which will entitle them to be registered in the United Kingdom.

Candidates holding a United States Diploma must be registered in the State of New York.

By order of the Deputy Chairman of the Court of Trustees and Directors.

J. WARD, Steward and Secretary.

General Hospital, Jemmott's-lane, Bridgetown, Barbados, B.W.I., May 26th, 1923.

The Queen's University of Belfast.**LECTURER IN PHARMACOLOGY.**

Applications are invited for the Lectureship in Pharmacology on or before 7th July.

Salary £450 per annum.

Further information may be had from

J. M. FINNEGAN, Secretary.

EAST AFRICA.**Vacancies now exist in the grade of**

MEDICAL OFFICER, EAST AFRICAN MEDICAL SERVICE, in Uganda and Zanzibar. Salary £600 per annum, rising by £25 annually to £900, with efficiency bars at £700 and £800. Quarters free of rent are provided; also passages to and from East Africa. Private practice is permitted but is in the majority of stations not of much value. Prospects of promotion to the senior grades. Preference will be given to candidates under thirty-five years of age. Full particulars as to pay and pension, and forms of application may be obtained from the Assistant Private Secretary (Appointments), Colonial Office, from whom particulars of vacancies in other Colonial Services may also be obtained.

Medical Officer (Resident) required to

Supervise Seaside Branch of Mental Hospital. Small farm attached.—Apply, stating essential particulars, to No. 119, THE LANCET Office, 423, Strand, W.C. 2.

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PRACTICE or PARTNERSHIP. Receipts (or share) £1000 a year or more. House to be rented or bought. Necessary capital available.—Apply, Peacock & Hadley, 19, Craven-street, Strand, W.C. 2. (No charge unless sale effected.)

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PRACTICE situated in a rapidly growing Residential Seaside Resort. Receipts over £1400. Panel 750. Premium £1500. House can be purchased or rented.—Apply, quoting Folio 618, Mr. W. S. Atkins, Medical Transfer Agency, 43, Bedford-street, Strand, W.C. 2.

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£1200 a year. Old established. Panel 500. Easily worked. Detached corner house and garden on lease.—Apply, No. 7351, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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situated in a Colliery district. Receipts £960. Panel 500. Colliery appointment £580. Fees 3s. 6d. upwards. Plenty of scope. Corner house containing seven rooms, attic, &c.; rent £48 per annum. Premium one and a quarter years' purchase.—Apply, quoting Folio 602, Mr. W. S. Atkins, Medical Transfer Agency, 43, Bedford-street, Strand, W.C. 2.

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£1200 a year.—Old established. Visits 2s. 6d. upwards. Non-panel. Introduction as required. Premium £1200.—Apply, No. 7342, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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Panel nearly 500. Small Town. Corner house on lease. Preliminary Assistantship if desired.—Apply, No. 7343, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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£400 a year, increasing. Favourite resort. High fees, non-dispensing. Ample scope. Vendor retiring through ill-health. Every investigation.—Apply, No. 7343, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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Unopposed Country PRACTICE. Receipts £1400. Panel about 1000. Good fees. Plenty of sport—i.e., shooting, hunting, &c. Excellent house containing six bedrooms, &c.; large garden, field, garage, &c. Premium for Practice £2100; premium for freehold house and estate £2000.—Apply, quoting Folio 603, Mr. W. S. Atkins, Medical Transfer Agency, 43, Bedford-street, Strand, W.C. 2.

Eastern County.—Urgent.—£800 a

year.—Unopposed. On rail. Panel over 500. Detached house on lease. Schools near. Personally known. Premium one and a half years' purchase.—Apply, No. 7319, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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year. Very old-established Country PRACTICE. Panel over 1300 and other appointments. Opposition slight. Small house in good position. Price one and a half years' purchase.—Apply, No. 7359, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

N. Wales.—About £1800 a year.—

Old-established Country PRACTICE. Panel over 1200. Fees 3s. 6d. to 7s. 6d. Welsh speaking desirable. Price only £2000.—Apply, No. 7361, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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London Suburb.—Over £2000 a year.

Panel 1300. Semi-detached corner house and small garden. Vendor retiring through ill-health. Premium £3000 with Partnership introduction.—Apply, No. 7314, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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City Practice, near.—£700 a year.

Increasing Consulting Practice. Fees from 10s. 6d. up. Great scope for V.D. and Surgical work.—Apply, No. 7332, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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Good General PRACTICE. Not much opposition. Small Town on rail. Panel over 1000. Bracing climate. Moderate house and garden on yearly tenancy. Premium only £1000.—Apply, No. 7336, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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PRACTICE situated in a growing district. Receipts £2800. Panel over 1000. Fees 2s. 6d. to 10s. 6d. Midwifery £3 3s. upwards. Vendor retiring. Excellent double-fronted house containing seven bedrooms, &c. Premium for practice one and a half years' purchase; premium for house £1200. Rent of branch £50 per annum.—Apply, quoting Folio 612, Mr. W. S. Atkins, Medical Transfer Agency, 43, Bedford-street, Strand, W.C. 2.

Midlands.—Average over £1100 a
year. Old established. Vendor retiring. Small panel. Corner house, good position, on lease. Partnership introduction. Premium £1600.—Apply, No. 7354, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

South Coast.—An old-established
General PRACTICE situated in a large Industrial Town. Receipts £3300. Panel 3300. Fees 2s. 6d. to 21s. Midwifery £3 3s., few cases only. House situated in main street of thickly populated quarter, containing five bedrooms, &c.; no garden; rent £75 per annum. Rent of branch £25 per annum. Premium one and a half years' purchase.—Apply, quoting Folio 615, Mr. W. S. Atkins, Medical Transfer Agency, 43, Bedford-street, Strand, W.C. 2.

North-West County.—£2300 a year.
Old-established good-class non-dispensing PRACTICE. Very little Midwifery. Easily worked. Good corner house available on lease. Very small panel. Good schools. Partnership introduction. Price one and a half years' purchase.—Apply, No. 7344, Mr. Percival Turner, 4, Adam-street, Strand, W.C. 2.

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Royal College of Surgeons of England.

ELECTION TO THE COURT OF EXAMINERS.

Notice is hereby given that the Council, on the 31st proximo, will proceed to the election from the Fellows of the College of a Member of the Court of Examiners in the vacancy occasioned by the resignation of Mr. F. F. Burghard.

Fellows of the College desirous of becoming candidates for the office must make application in writing to the Secretary on or before Monday, the 23rd proximo.

S. FORREST COWELL, Secretary.

30th June, 1923.

THE LANCET.

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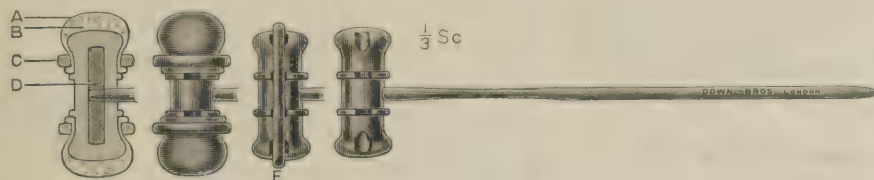
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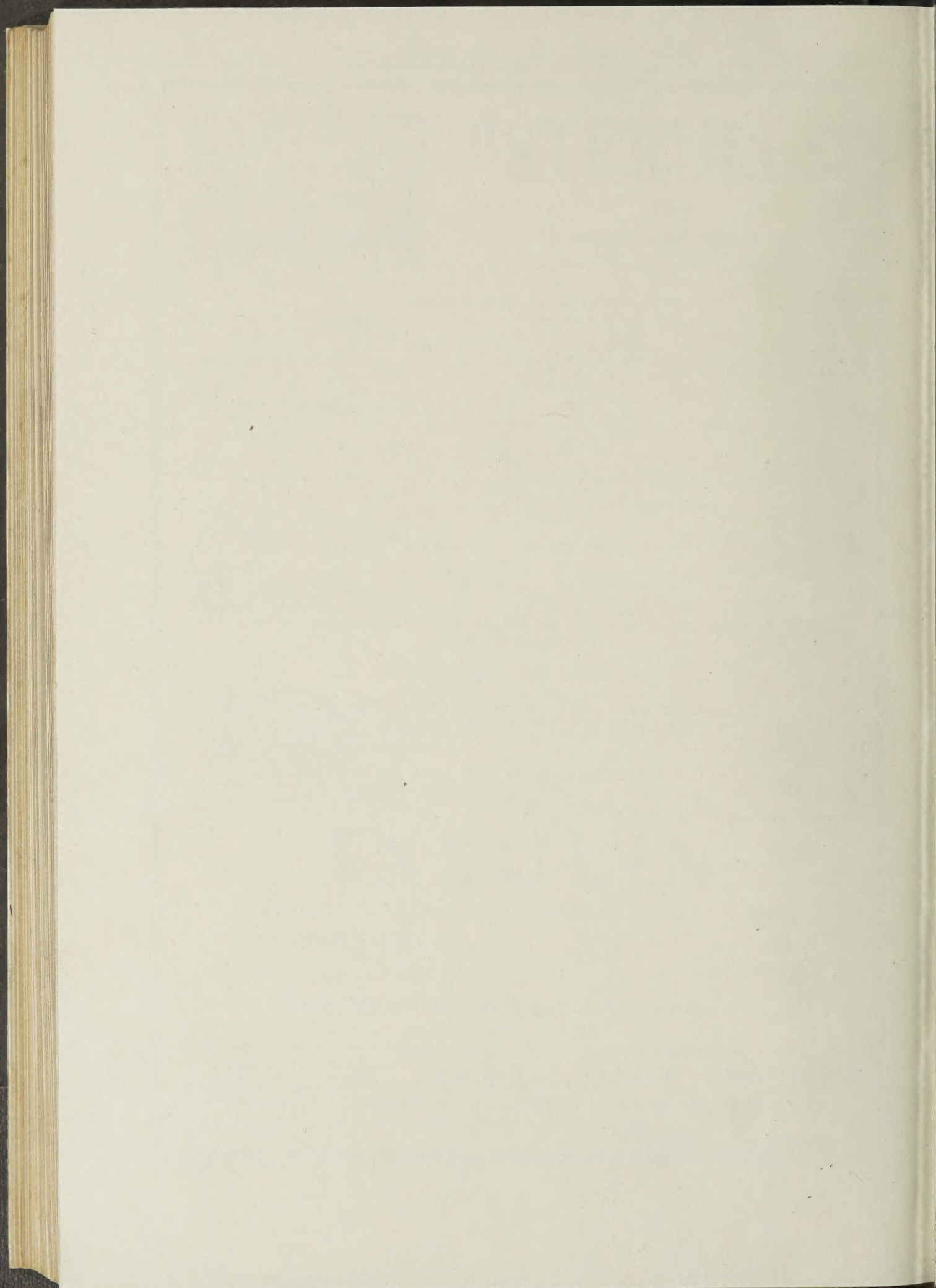


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